



STATE OF WASHINGTON  
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June 1, 2018

Electronic Copy

Vinson Latimore  
4200 Guide Meridian, Suite 101A  
Bellingham, WA 98226

**Re: Opinion on Proposed Cleanup of a Property associated with a Site:**

- **Property Address:** 10816 18<sup>th</sup> Avenue East, Tacoma, Pierce County, WA
- **Site Name:** Gibraltar Senior Living
- **Cleanup Site No.:** 12686
- **Facility/Site No.:** 6607
- **VCP Project No.:** SW1472

Dear Vinson Latimore:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup of a Property associated with the Gibraltar Senior Living facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D Revised Code of Washington (RCW).

## Issues Presented and Opinion

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1. Upon completion of the proposed cleanup, will further remedial action likely be necessary at the Property to clean up contamination associated with the Site?

**NO. Ecology has determined that no further remedial action will likely be necessary at the Property to clean up contamination associated with the Site.**

**This will be contingent upon your decisions. Please see the NFA likely criteria identified below.**

2. Upon completion of the proposed cleanup, will further remedial action likely still be necessary elsewhere at the Site?

**YES. Ecology has determined that further remedial action will likely still be necessary elsewhere at the Site.**

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 Washington Administrative Code (WAC) (collectively “substantive requirements of MTCA”). The analysis is provided below.

The purpose of this opinion is multiple:

1. To complete a comprehensive review of historical cleanup activities, review the current status of the cleanup, and provide Ecology’s recommendations.
2. To discuss residual petroleum contamination at the Property and Site delineation.
3. To respond to Vandenberg Johnson & Gandara, LLP’s letter dated February 1, 2018 (**Enclosure A**).
4. To provide comments on ZipperGeo Associates, LLC’s (ZGA) *Crawlspace Air Sampling* report, dated October 6, 2017, and ZGA’s *Vapor Intrusion Mitigation Plan*, dated February 28, 2017 (**Enclosure B**).

## **Description of the Property and the Site**

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This opinion applies only to the Property and the Site described below. This opinion does not apply to any other sites that may affect the Property. Any such sites, if known, are identified separately below.

### **1. Description of the Property.**

The Property includes the following tax parcel in Pierce County, which were affected by the Site and will be addressed by your cleanup:

- 0319034012.

To date, a legal description of the Property and a diagram illustrating the location of the Property within the Site have not been provided to Ecology. **Please clarify the extent of the 0319034012 parcel.**

### **2. Description of the Site.**

A Site description as it is currently known to Ecology is included in **Enclosure C**. However, the Site may not yet be completely delineated.

### **3. Identification of Other Sites that may affect the Property.**

Please note the Property is also located within the projected boundaries of the Tacoma Smelter Plume facility (facility Site identification [FSID] #62855481). At this time, we have no information that this Property is actually affected. This opinion does not apply to any contamination associated with the Tacoma Smelter Plume facility.

## **Basis for the Opinion**

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This opinion is based on the information contained in the following documents:

1. Letter from Vandenberg Johnson & Gandara, LLP to Ecology, *RE: November 28, 2017, Further Action opinion letter*, dated February 1, 2018.
2. Ecology, *Re: Further Action at the following Site*, dated November 28, 2017.
3. ZipperGeo Associates, LLC (ZGA), *Crawlspace Air Sampling Report*, dated October 6, 2017.
4. ZGA, *Vapor Intrusion Mitigation Plan*, dated February 28, 2017.
5. ZGA, *Submittal of Supplemental Site Characterization Report*, dated January 9, 2017 (report is Terracon Consultants, Inc.'s [Terracon] draft *Supplemental Site Characterization*, dated August 29, 2016).
6. Email correspondence from J. Cook, Ecology, to L. Rachman, Terracon, dated May 2, 2016.
7. Terracon, *Technical Memorandum, RE: Gibraltar Senior Living (VCP SW1472)*, Responses to Ecology Further Action letter dated January 27, 2016 (Terracon Project No. B2157004), dated April 12, 2016.
8. Ecology, *Re: Further Action at the following Site*, dated January 27, 2016.
9. Terracon, *Supplemental Limited Site Investigation*, dated November 6, 2015.
10. Terracon, *Limited Site Investigation*, dated July 7, 2015.
11. Aerotech Environmental Consulting, Inc. (Aerotech), Phase I Environmental Site Assessment, dated December 9, 2014.
12. Seattle Tank Services (STS), *UST Removals – 10816 18<sup>th</sup> Avenue E, Tacoma, Washington*, dated October 11, 2011.

Pertinent Site email correspondence is included as **Enclosure D**. The documents listed above are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Public records can be requested at:

<https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests>.

This opinion is void if any of the information contained in those documents is materially false or misleading.

## **Analysis of the Cleanup**

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### **1. NFA likely criteria.**

- a. In 2011, three heating oil USTs were removed and petroleum contaminated soils were removed to the extent practicable during an interim action.
- b. As described in greater detail in the sections below, based on the data presented to date, Ecology concurs that adequate data has been collected to determine a cleanup action for the Site, with the exception of potential areal delineation regarding former underground storage tank (UST) #3.

- c. If installed, naphthalene concentrations detected in indoor air in the vicinity of former UST #2 would likely be mitigated by the proposed sub-slab membrane depressurization system (SMDS).<sup>1</sup>
- d. If instead of the proposed SMDS, another cleanup alternative for naphthalene in air is proposed, additional evaluation may be necessary (see air sampling section below).
- e. In an email to Ecology on October 12, 2017, an NFA without a restrictive covenant was requested, which was a change from previous discussions<sup>2</sup> with Ecology. If any media at a site is contaminated at concentration(s) greater than applicable cleanup levels and no cleanup action plan is proposed to remediate contamination in those media, an environmental covenant with institutional controls is necessary.
- f. As this is an independent remedial action, Ecology does not provide oversight and approval for your cleanup.<sup>3</sup> Persons conducting independent remedial actions do so at their own risk, and may be required to take additional remedial actions if the department determines such actions are necessary.<sup>4</sup> As part of the independent remedial action process, Ecology may provide informal advice and assistance (technical consultations) on the administrative and technical requirements of this chapter to persons conducting or otherwise interested in an independent remedial action.<sup>5</sup>

## **2. Cleanup of the Property located within the Site.**

### **a. Characterization of the Property within the Site.**

Though some limited delineation of contaminated media at the Property and Site may remain, Ecology has determined your characterization of the Site is adequate to establish cleanup standards for the Site and select a cleanup for the Property and Site. The Site is described above and in **Enclosure A**.

#### Soil – Direct Contact:

This pathway is complete. In 2011, STS removed the majority of petroleum contaminated soil (PCS) by excavation and disposed of it at an approved facility (LRI in Graham, Washington).<sup>6</sup> A limited amount of PCS could not be accessed at each UST excavation extent because of inaccessibility beneath buildings, utilities, and/ or road. Terracon completed confirmatory soil sampling in 2015 and 2016. Soil sampling has been conducted in accordance with WAC 173-340-900, Table 830-1, including naphthalene.

Given the presence of naphthalene in sub-slab soil gas and in the crawl space air adjacent to UST #2, some PCS likely remain in place. The greatest confirmed remaining reported concentration of petroleum in soil reported around the former UST #2 excavation is 12,000 mg/kg at location “S”.<sup>7</sup>

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<sup>1</sup> ZGA, *Vapor Intrusion Mitigation Plan*, dated February 28, 2017.

<sup>2</sup> See selected email correspondence in Enclosure D and ZGA, *Re: Submittal of Supplemental Site Characterization Report*, dated January 9, 2017.

<sup>3</sup> WAC 173-340-515(1).

<sup>4</sup> WAC 173-340-515(3).

<sup>5</sup> WAC 173-340-515(5).

<sup>6</sup> Seattle Tank Services, *UST Removals* report, dated October 11, 2011.

<sup>7</sup> Based on the table from Seattle Tank Services' *UST Removals* report.

During the 2011 excavation of PCS associated with UST #3, STS reported leaving PCS at locations “X” (7,800 mg/kg), “V” (13,000 mg/kg), and “Q” (17,000 mg/kg).<sup>8</sup> Terracon proposed that these locations were likely removed<sup>9</sup>; however, STS’s statements and photos contradict this conclusion.<sup>10</sup>

In 2015, Terracon advanced confirmatory soil borings (EB-6, EB-7, and EB-11) as close as possible to sample locations “X”, “V”, and “Q”. However, confirmatory soil samples submitted and analyzed were not within the exact same depth interval as the original sample depth. For instance, soil sample locations “V” and “Q” were sampled at 6 feet below ground surface (bgs), but their respective closest confirmatory sample depth were at 7.5 and 8.5 feet bgs. Additionally, based on Terracon’s Exhibit 5<sup>11</sup> and the EB-7 boring log, it appears EB-7 was advanced through excavation fill. TPH concentrations in soil sampled ranged from 1,300 mg/kg (EB-11 @ 7.5-8’) to 3,000 mg/kg (EB-6 @ 9.5-10’). TPH concentrations were vertically delineated to non-detect. Petroleum odor and petroleum sheen were reported on the boring logs at approximately 6 or 7 feet bgs in each boring log for EB-6 and EB-7.

Based on the data submitted to Ecology, PCS is likely still in place in the vicinity of former UST #3 exceeding the Site-specific cleanup level. Additional removal is prevented by conflicts with the building and utilities.

Based on all data submitted to Ecology to date, Ecology concurs that adequate soils characterization has been completed at UST #1 and UST #2 to select a cleanup action. Additionally, adequate vertical delineation of Site soils has been completed at former UST #3, though areal delineation may still be necessary to comply with WAC 173-340-350(7)(c)(iii)(B) and (C).

**A cleanup action is selected using the feasibility study process<sup>12</sup> with disproportionate cost analysis<sup>13</sup> to demonstrate costs are disproportionate to benefits where the incremental costs of the [permanent] alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by the [permanent] alternative over that of the other lower cost alternative. In cases of inaccessible PCS, institutional controls<sup>14</sup> using an environmental covenant could be considered as a mechanism to manage such inaccessible PCS. Terracon has identified an environmental covenant as a potential option.<sup>15</sup>**

#### Soil – Leaching to Groundwater:

The leaching to groundwater pathway is potentially complete. Though petroleum

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<sup>8</sup> Exhibit 5 from Terracon’s *Draft Supplemental Site Characterization*, dated August 29, 2016.

<sup>9</sup> See Exhibit 5 in Terracon’s *Draft Supplemental Site Characterization*, dated August 29, 2016.

<sup>10</sup> See the final paragraph on p.5, table, and photo log from STS’s *UST Removals* report, dated October 11, 2011.

<sup>11</sup> Exhibit 5 from Terracon’s *Draft Supplemental Site Characterization*, dated August 29, 2016.

<sup>12</sup> See requirement under WAC 173-340-350(2) and procedure under WAC 173-340-350(8). Ecology’s feasibility study checklist is available here: <https://fortress.wa.gov/ecy/publications/documents/1609007.pdf>

<sup>13</sup> WAC 173-340-360(3)(e).

<sup>14</sup> WAC 173-340-440.

<sup>15</sup> See email correspondence dated May 20, 2015, and p. 12 in Terracon’s *Limited Site Investigation*, dated July 7, 2015.

concentrations exceeding the Site-specific cleanup levels in soil remain, concentrations of TPH in on-Property groundwater were less than the MTCA Method A cleanup levels.

Groundwater:

Based on regional topography, Terracon inferred the groundwater flow direction at the Site to the east-northeast.<sup>16</sup> For those on-Property groundwater samples collected and analyzed (EB-8, EB-13, and EB-14), groundwater was not sampled in an area in the inferred downgradient (east-northeast) of soil contamination, largely due to buildings blocking access to the east-northeast of each former UST location. Groundwater samples were collected at EB-10 and EB-12,<sup>17</sup> and reportedly these samples were not analyzed because they were not considered to be representative of ambient groundwater conditions.<sup>18</sup> Temporary well points were also advanced at locations EB-17 and EB-18, but groundwater was not observed so no sample was collected. Each temporary well point consisted of a two inch diameter well, screened from approximately 5-10 feet bgs, with sand pack at least one foot above the well screen. No groundwater data has been collected between former UST #3 and EB-16. Concentrations of petroleum in each well point were less than the MTCA Method A cleanup levels.

A permanent groundwater monitoring well network, used for evaluating groundwater at petroleum cleanups, has not been installed at the Site.<sup>19</sup> A groundwater flow direction cannot be calculated without a permanent, surveyed, properly constructed monitoring well network. A well network is also used to evaluate seasonal fluctuations of the groundwater table.

The closest municipal groundwater supply wells to the Site are located approximately 2,400 feet to the northwest. Depth to water in domestic and municipal supply wells within a mile of the Site is approximately 158-166 feet below top of casing (TOC). Based on the depth to water and distance to water supply wells, as well as the concentrations of petroleum in groundwater on-Property at less than the MTCA Method A cleanup levels, the heating oil release on-Property is not likely a threat to existing drinking water supplies.

Terracon concluded that two reported releases on adjoining properties were not anticipated to be the source of the petroleum contaminated detected at EB-16.<sup>20</sup> Both facilities are located on property owned by Franklin Pierce School District. One of the facilities is the Franklin Pierce School District Transportation facility, located approximately 400 feet to the northwest of EB-16. The second facility is Franklin Pierce High School, where a historical petroleum release<sup>21</sup> was located approximately 475 feet

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<sup>16</sup> Terracon, *Gibraltar Senior Living (VCP SW1472), Responses to Ecology Further Action letter dated January 27, 2016 (Terracon Project No. B2157004)*, dated April 12, 2016. No page numbers are provided in this document.

<sup>17</sup> Section 4.3 from Terracon's *Limited Site Investigation*, dated July 7, 2015.

<sup>18</sup> p. 10 from Terracon's *Limited Site Investigation*, dated July 7, 2015.

<sup>19</sup> See section 6.9 in Ecology Publication No. 10-09-057, *Guidance for Remediation of Petroleum Contaminated Sites*, Revised June 2016.

<sup>20</sup> Terracon, *Gibraltar Senior Living (VCP SW1472), Responses to Ecology Further Action letter dated January 27, 2016 (Terracon Project No. B2157004)*, dated April 12, 2016.

<sup>21</sup> Cleanup Site ID 1486, which was cleaned up under VCP project #SW0457. Ecology issued a status of No Further Action (NFA) for the SW0457 Site on October 3, 2003.

southwest of EB-16. In terms of areal distance, boring EB-16 is approximately 50 feet south of the release at former UST #3.

In an opinion letter dated November 28, 2017, Ecology provided technical assistance<sup>22</sup> regarding contamination identified in off-Property groundwater at boring location EB-16. Terracon used soil data from EB-16 to delineate the Site to the south.<sup>23</sup> Per a letter submitted by your attorney to Ecology dated February 1, 2018, you believe that contamination at boring EB-16 location is not part of the SW1472 Site, and disagreed with Ecology's recommendations from the November 28, 2017, opinion letter. No soil and groundwater data has been collected between former UST #3 and EB-16.

- **Please clarify how the release from former UST #3 at the SW1472 facility is delineated, meeting the requirements under WAC 173-340-350(7)(c)(iii).**
- **Please clarify how the SW1472 Site boundary relates to parcel boundary 0319034012.**
- **Provide a figure to Ecology clearly delineating the areal Site extent as related to the releases for the former heating oil USTs. This same figure could also be used to show the 0319034012 parcel boundary.**
- **Per WAC 173-340-350(7), Ecology concurs that sufficient data has been collected at the former locations for UST #1 and #2 to select a cleanup action. Depending on the results of Site delineation clarification requested above, additional data may be necessary to complete areal delineation of the Site for soil and/or groundwater in the vicinity of former UST #3.**

Air (Soil gas/vapor):

In October 2015, sub-slab soil vapor samples were collected at one location adjacent to each of the former UST locations. Naphthalene was not detected in air samples taken in sub-slab soil gas adjacent to USTs #1 and #3, but exceeded the MTCA Method B screening level in soil vapor sampled adjacent to former UST #2.

Chloroform exceeded the MTCA Method B sub-slab screening level in soil vapor associated with UST #3. Via electronic mail correspondence dated May 2, 2016, Ecology concurred with Terracon's analysis that chloroform was the result of a leaking water pipe or laundry return pipe and that no additional action was necessary regarding chloroform in air at the Site. All other volatile organic contaminants detected during the October 2015 sub-slab soil vapor sampling were less than the MTCA Method B screening levels.

For additional discussion regarding naphthalene in air, please see the Air Sampling section below.

Ecological (includes the Soil to Ecological pathway):

Terracon, in their *Supplemental Limited Site Investigation*, proposed an exclusion from

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<sup>22</sup> WAC 173-340-515(5).

<sup>23</sup> p. 11 in Terracon's *Draft Supplemental Site Characterization*, dated August 29, 2016.

further terrestrial ecological evaluation (TEE) based on the remaining areal extent of contaminated soil at less than 350 square feet. Though the majority of PCS has been excavated and removed at the Site, soil and sub-slab soil gas data indicate contamination remains, potentially at an areal distribution greater than 350 square feet. Thus, Ecology does not concur with using this exclusion for the TEE.

**However, per WAC 173-340-7492(2)(a)(ii), Ecology concludes that the Site can be excluded from further TEE based on analysis using Table 749-1 (WAC 173-340-900).** The Table 749-1 calculation is presented as **Enclosure E**.

Surface Water:

Though a storm water retention pond is located approximately 200 feet east of the Site, the nearest natural surface water is located approximately 3,000 feet west of the Site. Based on the concentrations of petroleum in groundwater sampled at the Site and the distance to surface water, the surface water pathway is incomplete. As the surface water pathway at this Site is incomplete, no cleanup standards or points of compliance are required to be established for this Site.

Sediment:

Sediment has not been observed at the Site. There is no evidence sediment has been impacted by this release, and the Site is not near surface water, and thus, the sediment pathway is incomplete. As the sediment pathway at the Site is incomplete, no cleanup standards or points of compliance are required to be established for this Site.

**b. Establishment of cleanup standards for the Site.**

**i. Substance-specific standards.**

To date, these are the proposed cleanup levels for the Property and the Site:

Total TPH in soil:	3,330 mg/kg (Site-specific/Method B) <sup>24</sup>
Total TPH in groundwater:	500 µg/L (Method A)
Naphthalenes in soil:	5 mg/kg (Method A)
Naphthalenes in sub-slab soil vapor:	2.45 µg/m <sup>3</sup> (Method B)
Naphthalenes in air:	0.0735 µg/m <sup>3</sup> (Method B) <sup>25</sup>

Ecology concurs with the 3,330 mg/kg Site-specific cleanup level for TPH rather than the re-calculated Site-specific cleanup level of 3,329 mg/kg because the naphthalene in soil was collected at a different location and at a different time (2016) than the original volatile and extractable petroleum hydrocarbon (VPH/EPH) sample in 2011.

Diesel and heavy oil range hydrocarbons (analyzed by method NWTPH-Dx) in soil were initially reported cumulatively as TPH during the 2011 UST removal and

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<sup>24</sup> Ecology concurred with the proposed cleanup level for TPH of 3,330 mg/kg per its further action opinion letter dated January 27, 2016.

<sup>25</sup> May be subject to change depending on evaluation of sensitive receptors and any indoor air results.

sampling event. The cumulative TPH number is an acceptable approach.<sup>26</sup> Subsequent sampling indicated that on-Property petroleum soil and groundwater contamination was in the diesel range. Heavy oil range petroleum hydrocarbons were not detected.

Ecology does not concur with the proposed use of the MTCA Method B direct contact cleanup level for naphthalene (1,600 mg/kg) as on-Property groundwater has not been analyzed for naphthalene. Therefore, Ecology states that the MTCA Method A cleanup level for unrestricted land use for naphthalene in soil, protective of drinking water (leaching to groundwater pathway) is applicable for the Site. Naphthalene concentrations in soil (up to a maximum of 0.82 mg/kg) have been reported at concentrations less than the MTCA Method A cleanup level.

The Site-specific cleanup level of 3,330 mg/kg is applied to a cumulative value for petroleum hydrocarbons in soil. Some residual petroleum concentrations exceeding the Site-specific cleanup level for soil remain. TPH concentrations in groundwater collected on-Property were less than the MTCA Method A cleanup level of 500 µg/L. Different cleanup levels for different substances and media may be established at a petroleum cleanup Site per WAC 173-340-700(8)(a)(i).

**c. Interim actions and points of compliance.**

Though a feasibility study was not completed as required by WAC 173-340-350, and a final cleanup action has not been selected for the Site, the following interim remedial actions have been completed:

- In 2011, removal of three steel heating oil USTs used to store heating oil:

UST ID Number	Capacity (gallons)
1	1,000
2	675
3	675

- Excavation and landfill disposal of PCS at LRI (Graham, Washington):

UST ID Number	PCS Excavated and Disposed Off-Site (Tons)
1	54.63
2	94.53
3	153.60
<b>Total:</b>	<b>302.76</b>

To date, standard points of compliance have been used for the Property and Site:

Soil – Direct Contact: Per WAC 173-340-740(6)(d), for soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance is: “. . . *throughout the*

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<sup>26</sup> Ecology Publication No. 04-09-086, *Implementation Memorandum No. 4: Determining Compliance with Method A Cleanup Levels for Diesel and Heavy Oil*, dated June 2004.

*site from ground surface to fifteen feet below the ground surface.”*

Soil Leaching: Per WAC 173-340-740(6)(b), where soil cleanup levels are based on the protection of groundwater: “. . . *the point of compliance shall be established in the soils throughout the Site.*”

Groundwater: For groundwater, the standard point of compliance as established under WAC 173-340-720(8)(b) is: “. . . *throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the Site.*”

Air (ambient and indoor, and including soil vapor): For air, the standard point of compliance as established under WAC 173-340-750(6): “. . . *[c]leanup levels established under this section shall be attained in the ambient air throughout the site.*”

Proposed cleanup levels and points of compliance have thus far been the same for the Property and Site. Contaminated soils with TPH concentrations exceeding the Site-specific cleanup level are likely still in place at each former UST location.

### 3. Residual soils contamination.

- a. Depending on the results of any feasibility study and disproportionate cost analysis completed, an environmental covenant may be appropriate to address remaining inaccessible residual soils contamination. The purpose of the environmental covenant would be to notify any future Property owner, construction worker completing Property re-development, or utility worker performing repair or upgrade duties, of the potential for encountering petroleum contamination in soil. The environmental covenant would also provide restrictions on groundwater use and address any potential compliance monitoring (e.g., air).
- b. An environmental covenant may be appropriate on a Property-specific or Sitewide basis. However, if the Site includes portions of more than one parcel or extends into a right-of-way, any additional parcel or parcels are typically required to be subject to the covenant.
- c. A starting reference document for environmental covenants is located here: <https://fortress.wa.gov/ecy/publications/SummaryPages/1509054.html>

### 4. Air sampling.

- a. In October 2015, sub-slab soil vapor was sampled within each Site building as close as feasible to each former heating oil UST location. The concentration of naphthalene<sup>27</sup> exceeded the MTCA Method B sub-slab screening level in soil vapor associated with UST #2. The laboratory PQL for naphthalene in the other two samples was 6.6 µg/m<sup>3</sup>. Terracon evaluated two different sets of results using USEPA’s online forward Johnson Ettinger Model (JEM) calculator<sup>28</sup>, and predicted indoor air concentrations for naphthalene up to a maximum of 0.1657 µg/m<sup>3</sup>. Based on naphthalene in air data collected to date, the JEM results were not sufficiently conservative.
- b. In June 2016, the concentration of naphthalene in air in the crawl space under the

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<sup>27</sup> [https://cfpub.epa.gov/ncea/iris/iris\\_documents/documents/subst/0436.htm](https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0436.htm)

<sup>28</sup> [https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE\\_lite.html](https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE_lite.html)

building adjacent to UST #2 ranged from 0.47-0.50  $\mu\text{g}/\text{m}^3$ . The concentration of naphthalene in ambient air (at a presumed upwind location, though field notes and weather conditions at the time of sampling were not provided to Ecology for review), was 0.38  $\mu\text{g}/\text{m}^3$ .

- c. In order to provide one cleanup option based on mitigation of the naphthalene in the crawl space air associated with UST #2, ZGA proposed a SMDS in their *Vapor Intrusion Mitigation Plan*, dated February 28, 2017.
  - a. The proposed SMDS would likely mitigate potential naphthalene concentrations in crawl space air greater than the MTCA Method B cleanup level of 0.0735  $\mu\text{g}/\text{m}^3$  (using standard exposure scenario values under equation 750-2). Ecology's comments regarding the proposed SMDS are provided in **Enclosure B**.
- d. In an effort to meet cleanup levels for naphthalene in air without mitigation, on July 21 and August 18, 2017, ZGA sampled crawl space and ambient air adjacent to UST #2. Naphthalene in air was analyzed by USEPA Method TO-15.
  - i. Naphthalene was not detected during the July 2017 event at a laboratory PQL of 3.3  $\mu\text{g}/\text{m}^3$  and not detected at a laboratory method detection limit (MDL) of 0.154 ppbv, which is approximately<sup>29</sup> equivalent to 0.807  $\mu\text{g}/\text{m}^3$ .
  - ii. Naphthalene was detected at a concentration of 0.15  $\mu\text{g}/\text{m}^3$  in crawlspace air and 0.19  $\mu\text{g}/\text{m}^3$  in ambient air from the August 2017 event.
  - iii. Sampling for naphthalene in air during the August 2017 event using method USEPA TO-17 could not be completed because of device failure.<sup>30</sup>
- e. Ecology requests documentation regarding weather conditions at the time of each air sampling event.<sup>31</sup>
- f. ZGA concluded<sup>32</sup> that the concentration of naphthalene in air "... can be attributed to the background (ambient) concentration of naphthalene and/or to laboratory contamination."<sup>33</sup>
  - i. It is Ecology's opinion that if laboratory contamination is suspected as the source of the naphthalene in air, then the crawlspace and ambient air should be re-sampled (with naphthalene in air analyzed at an accredited laboratory where cross-contamination is not a concern), along with indoor air, to determine actual Site conditions.
- g. Various reports<sup>34</sup> have suggested concentrations of naphthalene in ambient air might be influenced by a school bus barn located on the adjacent parcel to the west. However, field notes indicating whether or not the buses were operating during the various

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<sup>29</sup> Calculator at: <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-air-toxics/resources/unit-conversion-calculator/>

<sup>30</sup> ZGA's *Crawlspace Air Sampling Report*, dated October 20, 2017.

<sup>31</sup> Ecology first requested the weather conditions information via email correspondence with ZGA dated August 2, 2017.

<sup>32</sup> ZGA's *Crawlspace Air Sampling Report*, dated October 20, 2017.

<sup>33</sup> p. 5 in ZGA's *Crawlspace Air Sampling Report*, dated October 20, 2017.

<sup>34</sup> Terracon's *Draft Supplemental Site Characterization*, dated August 29, 2016. And ZGA's *Crawlspace Air Sampling Report*, dated October 20, 2017.

sampling events have not been provided to Ecology.

- i. **If off-Property sources are to be evaluated, please submit an evaluation plan.**
- ii. Of note, the sub-slab soil vapor data collected adjacent to former UST #2 in October 2015 suggests that the heating oil release is more likely to be the source of naphthalene in crawl space air than an off-Property source.
- h. Per WAC 173-340-750(1), when cleanup standards to protect air quality are required to be established at a Site, those standards apply to ambient (outdoor) air and air within any building, utility vault, manhole or other structure large enough for a person to fit into.
- i. Per USEPA guidance,<sup>35</sup> the crawl space air concentration to indoor air attenuation factor is 1.00 (no adjustment). Crawl space air concentrations should be considered representative of indoor air concentrations unless indoor air sampling data confirm that concentrations of naphthalene in indoor meet the MTCA cleanup levels or sufficient other information is available to determine there is no risk to sensitive receptors from naphthalene in indoor air. A Site-specific risk assessment may be appropriate.
- j. **For the naphthalene in air adjacent to former UST #2, please document facility sensitive receptors (e.g., residents), building construction details, room use within the buildings near former UST #2 location, and, if present, preferential exposure pathways for vapor.**<sup>36</sup>
  - i. It is necessary to ensure that the health of Site residents, workers, and visitors is protected from naphthalene in air exposure.
  - ii. For workers, consider evaluating their exposure for naphthalene based on the air concentrations at the Site relative to the permissible exposure limit published under WAC 296-841-20025.
  - iii. For naphthalene in air, the most stringent cleanup level at the Site will likely be the one protective of residents. Distance to the rooms of residents may be helpful in assessing potential exposure.
  - iv. Please clarify current and anticipated future land use to evaluate exposure to sensitive receptors.<sup>37</sup>
- k. **Please clarify:**
  - i. That these data from the July and August 2017 events have been uploaded to Ecology's EIM database. All Site data must be uploaded per WAC 173-340-840(5) and Ecology Policy 840.
  - ii. What is the proposed cleanup level for naphthalene in indoor air.
    - 1) Review equation 750-2<sup>38</sup> and consider if all of the standard assumptions are appropriate for your Site cleanup.
    - 2) To date, naphthalene in air results have been compared to the MTCA Method B screening level for indoor air using standard exposure assumptions from

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<sup>35</sup> p. 110 (Table 6-1) in USEPA, *OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air*, June 2015.

<sup>36</sup> Typically, this evaluation is included as part of a feasibility study for the Site.

<sup>37</sup> WAC 173-340-350(7)(c)(iii)(E).

<sup>38</sup> WAC 173-340-750(3)(b)(ii)(B).

equation 750-2.<sup>39</sup> If appropriate for this Site, and in cases where Ecology concurs, a Site-specific air cleanup level may be proposed, where modifications or adjustments must comply with those sections of MTCA referenced in WAC 173-340-750(3).

- iii. How the cleanup level for naphthalene in air proposed for the Site meets the requirements of WAC 173-340-750 and at what point of compliance.
- iv. Propose how, if necessary, air compliance monitoring<sup>40</sup> would be completed to ensure that the cleanup levels are met at the point of compliance and the cleanup action/remedy selected will continue to be protective of human health and the environment.<sup>41</sup>
- v. The current and anticipated future land use.

## Limitations of the Opinion

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### 1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Change the boundaries of the Site.
- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

### 2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

### 3. Opinion is limited to proposed cleanup.

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Property upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the VCP.

### 4. State is immune from liability.

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<sup>39</sup> WAC 173-340-750(2)(ii)(B).

<sup>40</sup> WAC 173-340-410(2) and WAC 173-340-750(7).

<sup>41</sup> WAC 173-340-750(7).

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. See RCW 70.105D.030(1)(i).

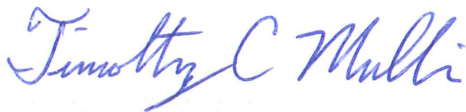
## Contact Information

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Thank you for choosing to clean up your Property under the Voluntary Cleanup Program. As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: [www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm](http://www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm). If you have any questions about this opinion, please contact me by phone at (360) 407-6265 or e-mail at [tim.mullin@ecy.wa.gov](mailto:tim.mullin@ecy.wa.gov).

Sincerely,



Tim Mullin, LHG  
Toxics Cleanup Program  
Southwest Regional Office

TCM: tam

Enclosures (5):

- A – Ecology’s response to Vandeberg Johnson & Gandara, LLP letter dated February 1, 2018
- B – Comments on ZGA’s *Vapor Intrusion Mitigation Plan*, dated February 28, 2017
- C – Site Description and Figures
- D – Email Correspondence
- E – Table 749-1 calculation for TEE

By certified mail: 9489 0090 0027 6019 1347 25

cc: Elizabeth Rachman, Atlas Geosciences Northwest  
Erica Doctor, Vandeberg Johnson & Gandara, LLP  
Rob Olsen, TPCHD  
Rebecca Lawson, Ecology  
Nicholas Acklam, Ecology  
Stephanie Bussell, Ecology  
Ecology Site File

## **Enclosure A**

Ecology's response to Vandenberg Johnson & Gandara, LLP letter dated February 1, 2018

**1. Ecology's response to Vandenberg Johnson & Gandara, LLP's letter dated February 1, 2018.**

On February 7, 2018, Ecology received the hard copy of the letter from Erica Doctor of Vandenberg Johnson & Gandara, LLP, representing Gibraltar Senior Living. Below is Ecology's response to pertinent points in the referenced letter:

Statement (Page 2, third paragraph): *“Based on the analytical data, STS removed another .5 tons of impacted soils from the west portion of the south wall and south portion of the west wall. Confirmation sampling showed the west portion of the final excavation was non-detect for petroleum impacts. Based on analytical results, no additional remedial actions were required at UST 1, and the excavation was backfilled with clean import pit run, over which was placed topsoil.”*

Ecology response: In 2011, STS soil sample location “AF” (“AF”), was left in place along the northeast sidewall at a total TPH concentration of 3,400 milligrams per kilogram (mg/kg). The contaminated soil was left in place in order to prevent undermining of a building footing. STS removed the additional 0.5 tons of contaminated soil from the west portion of the south wall and the south portion of the west wall<sup>1</sup>, not the north and east wall. As soil sample location “AF” was located on the north portion of the east wall, petroleum contaminated soil (PCS) in this area was not removed.

STS proposed a calculated Site-specific (MTCA Method B) cleanup value for total TPH of 8,027 mg/kg. Ecology reviewed the total TPH calculation and revised the calculated value to 3,330 mg/kg, as presented in Attachment B within the January 27, 2016 further action opinion letter.

In the *Submittal of Supplemental Site Characterization Report*, dated January 9, 2017, ZGA reported Terracon's efforts in 2016 to confirm current conditions at 2011 sampling locations, including “AF”. Confirmatory soil boring EB-20 was advanced as close to location “AF” as possible, but appeared to be advanced through the excavation fill<sup>2</sup>. At EB-20, TPH was detected in soil sampled at 6.5 feet bgs and 8 feet bgs, which is unexpected as the excavation bottom at UST #1 was at 8 feet bgs and clean fill had reportedly been used to backfill the excavation<sup>3</sup>.

- **Ecology concurs that the area around former UST #1 has been adequately characterized to select a cleanup action. However, PCS has not been completely remediated.**
  - WAC 173-340-360(2)(d) requires certain cleanup actions for areas of residential use, whether current or future. Please verify the anticipated land use going forward.
  - The confirmatory soil sample location EB-20, though it appears was advanced in excavation fill, was drilled as close as possible to location “AF”. Soil

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<sup>1</sup> Seattle Tank Services, *UST Removals* report, dated October 12, 2011.

<sup>2</sup> See Exhibit 3 in Terracon's *Draft Supplemental Site Characterization*, dated August 29, 2016.

<sup>3</sup> p. 4 in Seattle Tank Services, *UST Removals* report, dated October 12, 2011.

contamination was removed around UST #1 to the maximum extent practicable during the 2011 excavation.

- Concentrations of TPH in groundwater and sub-slab soil vapor data collected as close as possible to location “AF” were less than the applicable MTCA cleanup levels.
- **Based on the data collected and cleanup completed to date, it is more likely than not<sup>4</sup> that though some residual petroleum contaminated soil potentially remains in the vicinity of location “AF”, and the remaining concentration is more likely than not at a concentration which still exceeds the MTCA Method B Site-specific cleanup level.**

*Statement (page 2, end of fourth paragraph): “...Because no more material could be removed from near the east wall without risking damage to the building, STS used a hand auger to take two more samples from one foot and two feet into the east wall of the excavation pit. Sampling showed the presence of petroleum contamination at 12,000 ppm at one foot, and a concentration of 2,900 ppm at two feet. The rest of the confirmation sampling at UST 2 met the MTCA Method A cleanup standard.”*

*Statement (page 3, last sentence in fourth full paragraph): “It is safe to say that the UST 2 area has been adequately characterized, and that the only remaining petroleum-impacted soils are inaccessible.”*

Ecology response: Ecology concurs that soils in the vicinity of former UST #2 have been adequately characterized to select a cleanup action. However, concentrations of petroleum in soil at former location “S” exceeds the Site-specific cleanup level for TPH. Moreover, sampling location “I” (5,600 mg/kg diesel at six feet bgs) is likely still in place. The contaminated soils at “I”, “S”, and “T” are reportedly inaccessible and cannot be removed because of the building footprint.

Confirmatory boring EB-18, though advanced as close as possible to location “I”, appears to have been drilled through excavation fill. Confirmatory soil sampling location EB-15, advanced by hand auger, only reported recovery from 0-1.5 feet bgs<sup>5</sup>.

As pointed out on page 5 of STS’s October 2011 *UST Removals* report, samples “S” and “T” were collected from one and two feet *into* the excavation side wall. Sampling locations “S” and “T” are not one and two feet bgs, respectively, but rather one foot and two feet into the wall (to the east of) location “I”. Thus, sampling locations “S” and “T” are most likely located approximately six feet bgs.

*Statement (page 3, third full paragraph): “At the UST 1 location, Terracon advanced three soil borings (EB-9, EB-12, and EB-13) to 14 feet below ground surface (“bgs”) and installed temporary wells at EB-12 and EB-13 to facilitate the collection of groundwater*

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<sup>4</sup> In accordance with WAC 173-340-360(2).

<sup>5</sup> Appendix C, Terracon, *Supplemental Limited Site Investigation*, dated November 6, 2015.

*grab samples. The two soil samples submitted for laboratory analysis were non-detect for diesel- and oil-range petroleum hydrocarbons. The groundwater grab sample was non-detect for diesel-and oil-range petroleum hydrocarbon contamination. It is safe to say that the excavation at UST 1 area has been adequately characterized and remediated.”*

Ecology response: Though the groundwater sample collected at EB-12 was submitted to the laboratory, the results were not reported. The concentration of TPH in groundwater sampled from EB-13 was less than the MTCA Method A cleanup levels. Both EB-12 and EB-13 were located southwest of former UST #1, which is in the upgradient direction, if using Terracon’s inferred groundwater flow direction to the east-northeast<sup>6</sup>. Based on the soil and groundwater data collected in the vicinity of UST #1, it is more likely than not that concentrations of TPH in groundwater are less than the MTCA Method A cleanup level.

Terracon completed confirmatory soil sampling at the Property in 2015. Location EB-9<sup>7</sup> was the closest boring location to “AF” (approximately 5 feet to the southwest of “AF”). Of the 43 soil samples submitted to the laboratory from the 2015 investigations, only eight were analyzed and reported. Though the laboratory report indicates two soil samples from boring EB-9<sup>8</sup> were submitted to the laboratory, no analytical results for soils sampled at EB-9 were reported.

In 2016, Terracon made a second attempt to confirm current soil conditions at location “AF” by advancing boring EB-20 as close as possible to “AF” (approximately 5 feet west of “AF”). Soils were sampled at 6.5 feet and 8.5 feet bgs, and diesel concentrations reported were less than the MTCA Method A cleanup level. Per STS’s *UST Removals* report, the excavation was 8 feet deep at location sampling location “L.” Reportedly clean imported pit run was placed in the excavation and covered with clean topsoil. It is uncertain why diesel is present in soil sampled from boring EB-20 at 6.5 feet bgs.

**Based on the presence of diesel in supposedly clean pit run, please provide documentation regarding the source of the pit run material.**

Based on a figure provided to Ecology for review<sup>9</sup>, EB-20 was advanced through the excavation fill. Additionally, Terracon indicated that: “[s]ince it was not possible to get closer than 5 feet to STS sample “AF”, it is not known whether adversely-affected soils remain in this location.”<sup>10</sup> Location “AF” has not been delineated to the east (as soils in this direction are under the building). In lieu of current soil data in native material at “AF”, it is Ecology’s opinion that it is more likely than not that contaminated soil remains.

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<sup>6</sup> Terracon, *Gibraltar Senior Living (VCP SW1472), Responses to Ecology Further Action letter dated January 27, 2016 (Terracon Project No. B2157004)*, dated April 12, 2016. No page numbers provided in document.

<sup>7</sup> Terracon, Figure 3 from *Limited Site Investigation*, dated July 7, 2015.

<sup>8</sup> See p. 1 of Friedman & Bruya, Inc.’s laboratory report dated May 21, 2015, as included in Terracon’s *Limited Site Investigation*, dated July 7, 2015.

<sup>9</sup> Exhibit 3 from Terracon’s *Draft Supplemental Site Characterization*, dated August 29, 2016.

<sup>10</sup> p. 11 from Terracon’s *Draft Supplemental Site Characterization* dated August 29, 2016.

**Ecology concurs that petroleum contaminated soil (PCS) in the vicinity of “AF” and UST #1 has been adequately characterized, but concentrations of petroleum exceeding the Site-specific cleanup level for soil likely remain. Ecology concurs these soils are currently inaccessible for removal.**

Statement (p.5, second full paragraph): *“Terracon conducted a thorough review and concluded that the Property was not the source of the contamination at EB-16, and that Site characterization was complete. Gibraltar’s previous site manager, Jason Cook, agreed. While it is axiomatic that Ecology staff are not bound by the decisions of past personnel, in this case, it is clear that Mr. Cook based his determination on the evidence and analysis that Terracon conducted. It is, therefore, reasonable to conclude that Site characterization is complete.”*

Ecology response: As provided in Ecology’s November 28, 2017 opinion letter<sup>11</sup>, email correspondence between former Ecology SW1472 Site Manager Jason Cook and Terracon, dated May 2, 2016, states:

“In addition, upon review of the chromatograms – comparing the on-Site and off-Site releases, it does not *appear* the off-Site groundwater release is associated with the release from Gibraltar. However, Ecology (the new Site manager) may require additional data and analysis.”

- Ecology originally responded to this statement being made by ZGA in an email dated September 19, 2017.
- Ecology again provided a copy of the May 2, 2016 email correspondence and response as part of a further action opinion letter dated November 28, 2017.
- Ecology requested the aforementioned additional data and analysis as recommendations referenced in the email statement via its further action opinion letter dated November 28, 2017.
- Groundwater sampling at boring EB-8 was to the northwest (inferred cross-gradient) of former UST #3. No groundwater data has been collected between former UST #3 and EB-16.
- Terracon inferred groundwater flow direction at SW1472 to the east-northeast by topography<sup>12</sup>, but a groundwater flow direction has not been calculated for the Site using a properly constructed and surveyed monitoring well network. Additionally, groundwater flow directions in the vicinity of Gibraltar Senior Living may flow counter to that inferred by topography. For instance, the groundwater flow direction calculated for the monitoring well network installed at

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<sup>11</sup> Enclosure A in Ecology’s November 28, 2017, further action opinion letter.

<sup>12</sup> Terracon, *Gibraltar Senior Living (VCP SW1472), Responses to Ecology Further Action letter dated January 27, 2016 (Terracon Project No. B2157004)*, dated April 12, 2016.

SW1257, located approximately ¼ mile southeast of the Gibraltar Senior Living Property, varied from the southwest to southeast<sup>13</sup>, though topography was reportedly slightly to the north<sup>14</sup>.

- Groundwater data collected on Property has been collected to the southwest of former UST #1 (EB-13), to the southwest of former UST #2 (EB-14), and to the northwest of former UST #3 (EB-8). No groundwater data has been collected between former UST #3 and boring EB-16.
- Additional groundwater data may be necessary to delineate the SW1472 Site. Any proposal to collect these data may vary from the recommendations provided in Ecology's November 28, 2017 opinion letter, as long as the requirements under WAC 173-340-350(7) are met.

Statement (p. 6, first partial paragraph): “Additionally, as a practical matter, EB-16 is not located on Gibraltar’s property. Gibraltar does not have permission to install groundwater monitoring wells on property it does not own, nor does it have permission to conduct ongoing groundwater monitoring activities.”

Ecology response: If Gibraltar does not have permission to install monitoring wells on the adjacent property to the south, please clarify why boring EB-16 was advanced on the adjacent property to the south<sup>15</sup>. In those cases where contamination exceeds the Property boundary, a person completing a cleanup must comply with all permitting requirements under WAC 173-340-710(9)(a) and any applicable access requirements under WAC 173-340-800. Obtaining access to off-Property parcels to delineate where contamination has come to be located is a routine cleanup procedure.

Statement (p. 6, second full paragraph in Section 4): “However, even if Ecology requires additional Site characterization, Gibraltar requests that Ecology issue an on-Property NFA. In the November 2017 FA, Ecology notes that its discussion of the Site contamination was limited to off-Property diesel and oil concentrations in groundwater EB-16. In light of the fact that it appears the Property is “clean”, Gibraltar renews its request for an on-Property NFA.”

Ecology response: The November 28, 2017 further action letter limited the topic of discussion to the contamination at EB-16 for the purposes of focusing the discussion of that opinion letter, not because the Property was “clean.” In email correspondence dated November 22, 2017, Ecology clearly indicated that two opinion letters were being

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<sup>13</sup> Available at: <https://fortress.wa.gov/ecy/gsp/CleanupSiteDocuments.aspx?csid=11255>

See p. 8 of Antea Group’s *Subsurface Investigation Report, Former ARCO Facility No. 4415, 2013 East 112<sup>th</sup> Street, Tacoma, Washington*, dated October 23, 2013.

<sup>14</sup> p. 2 in Antea Group’s *Subsurface Investigation Report, Former ARCO Facility No. 4415, 2013 East 112<sup>th</sup> Street, Tacoma, Washington*, dated October 23, 2013.

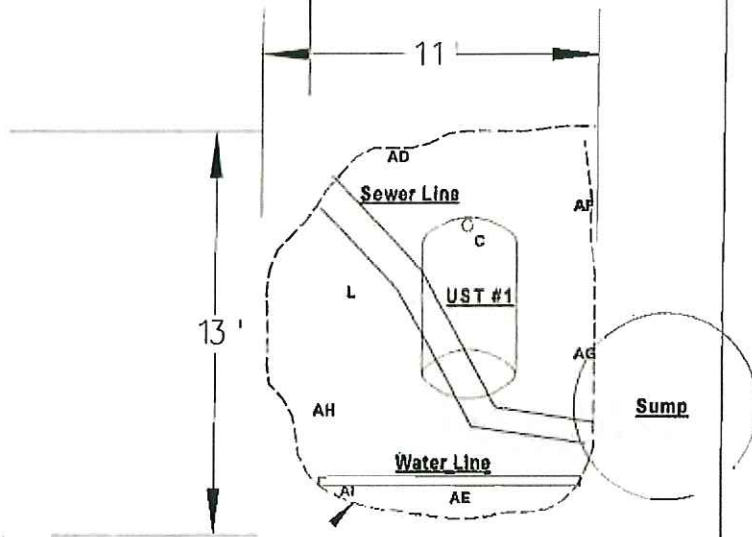
<sup>15</sup> Exhibit 2 in Terracon’s *Supplemental Limited Site Investigation*, dated November 6, 2015.

generated: one to discuss the contamination at EB-16, and a second opinion to discuss the on-Property contamination. This email correspondence is included in **Enclosure D**.

Statement (p. 6, second full paragraph in Section 4): “*We look forward to resolving this issue promptly so that Gibraltar can move forward with its plans for the Property.*”

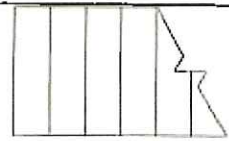
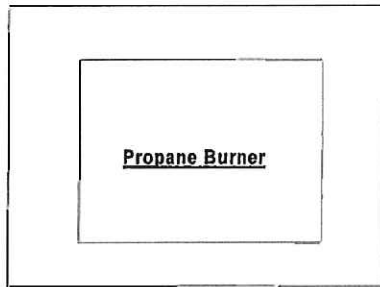
Ecology response: Please verify the anticipated future land use, especially with regards to the approach to naphthalene in air (see discussion in the air sampling section at the end of the main text of the letter).

To 18th Avenue E →

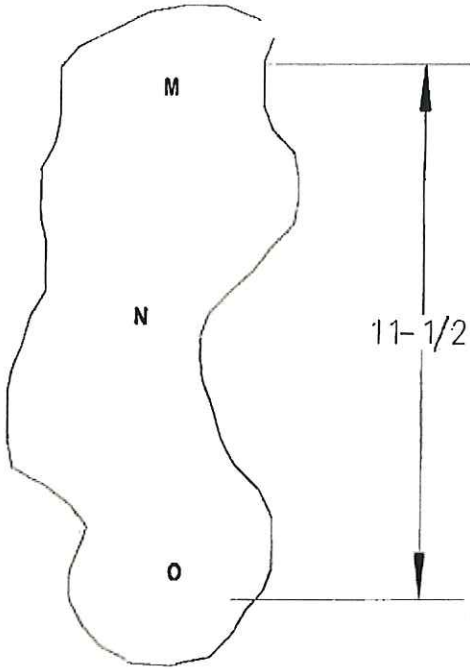


10816 18th Avenue E

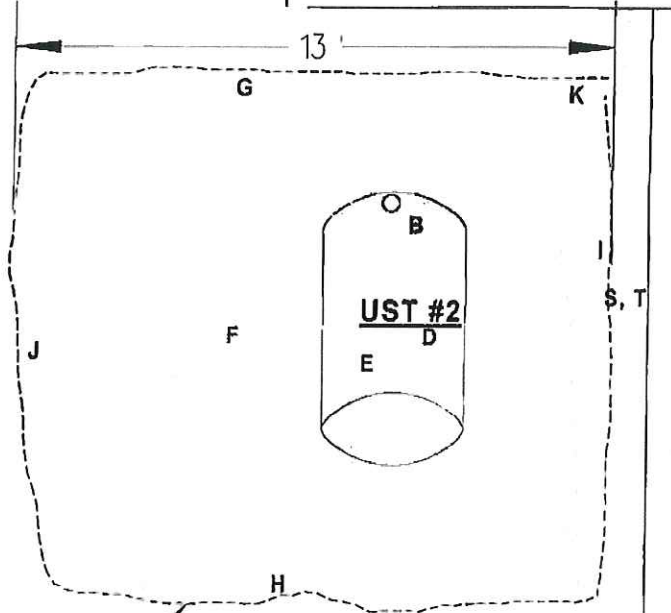
Boundary of Excavation



Overburden  
Soils Stockpile



11-1/2'



13'

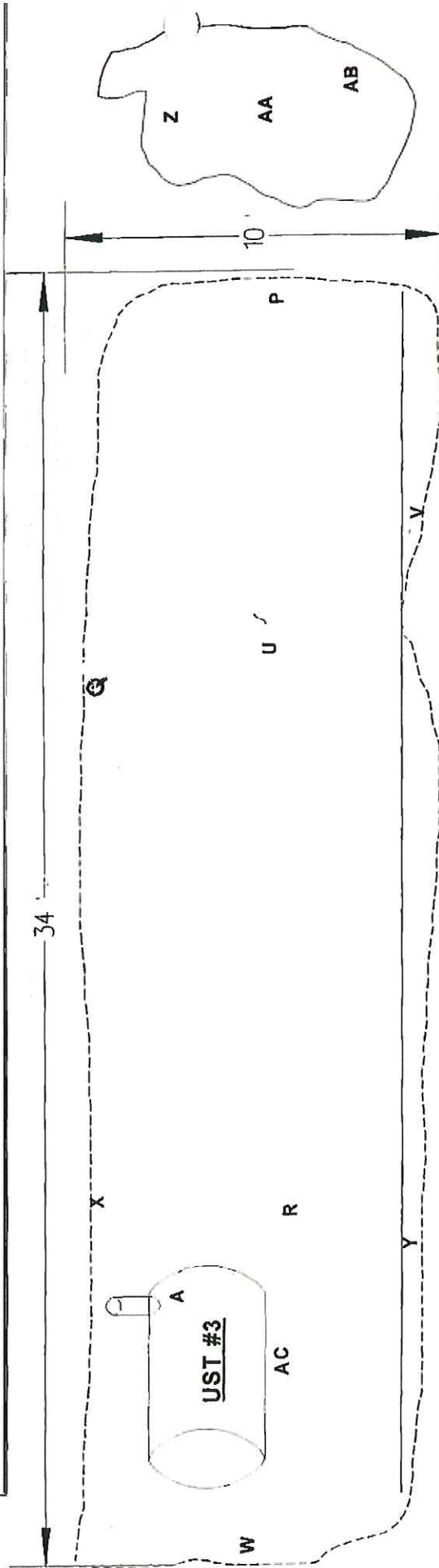
Boundary of  
Excavation

Building

To 18th Avenue E

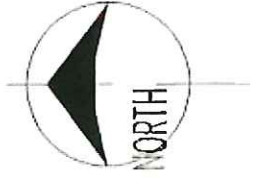


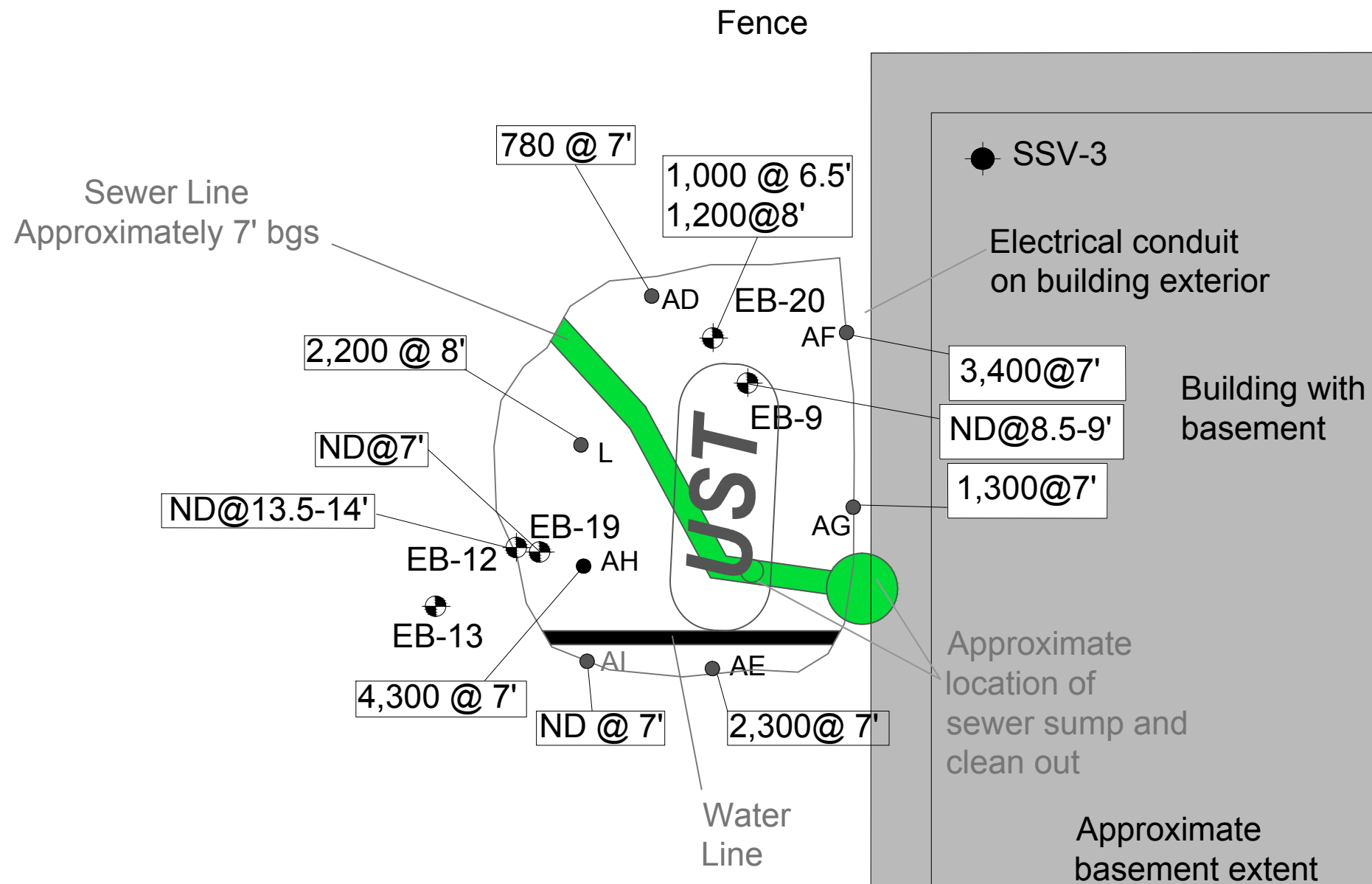
Building



Boundary of Excavation

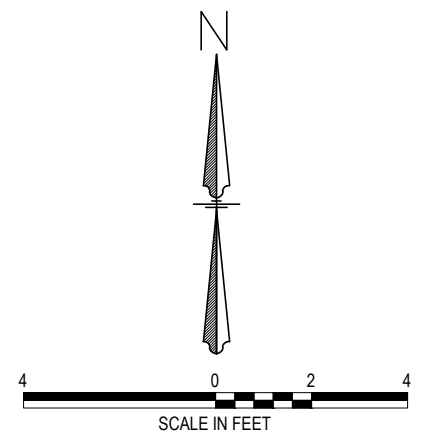
To 18th Avenue E →





**LEGEND**

- APPROXIMATE UST EXCAVATION (SEATTLE TANK SERVICES-OCTOBER 2011)
- APPROXIMATE LOCATION OF FORMER UNDERGROUND STORAGE TANK, SEATTLE TANK SERVICES, OCTOBER 2011
- TERRACON SUB-SLAB SOIL VAPOR APPROXIMATE LOCATION
- APPROXIMATE SEATTLE TANK SERVICES, OCTOBER 2011 SOIL SAMPLE LOCATION AND DEPTH (feet bgs) WITH DIESEL CONCENTRATION (mg/kg) SEATTLE TANK SERVICES (OCTOBER 2011) - IN PLACE
- APPROXIMATE TERRACON SOIL BORING LOCATION WITH DIESEL CONCENTRATION (mg/kg) AND DEPTH OF SAMPLE (feet bgs)
- ND=Non-detect  
Black concentration=below MTCA, site specific cleanup level









GIBRALTAR SENIOR LIVING 10816 18th Avenue East Tacoma, Pierce County, Washington	
SITE DIAGRAM UST #1 - 1,000 GALLON TANK	
DATE: JANUARY 2017	Job No. 1757.24
Zipper Geo Associates, LLC 19023 36th Ave. W., Suite D Lynnwood, WA	EXHIBIT SHT. 1 of 1

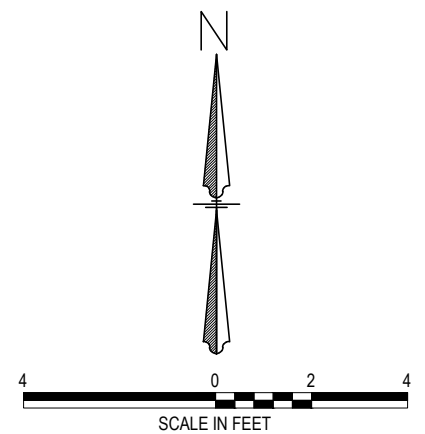
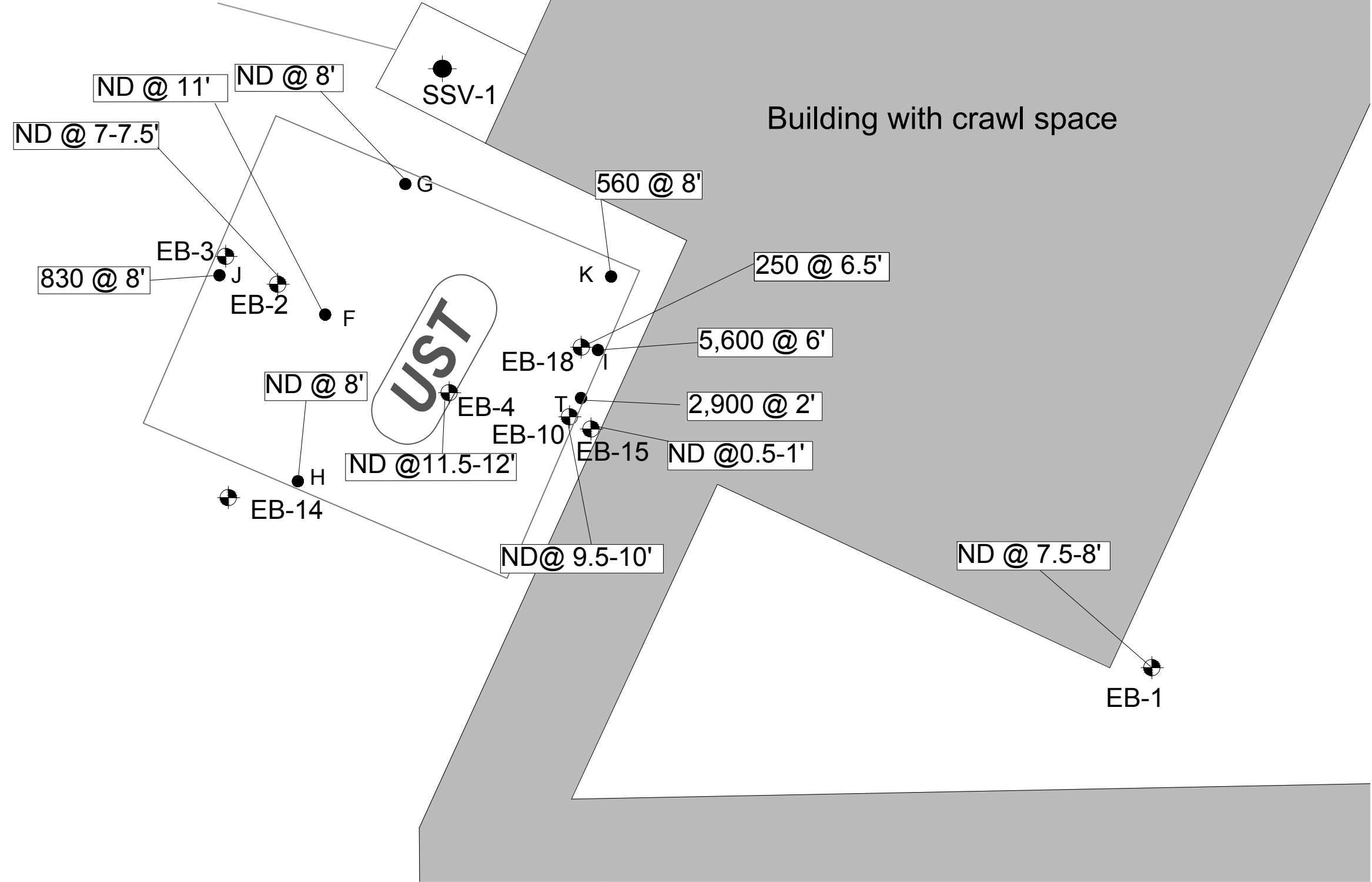
REFERENCE ADAPTED FROM EXHIBIT 3 OF TERRACON SUPPLEMENTAL SITE CHARACTERIZATION REPORT, DATED AUGUST 29, 2016.

Boiler room with slab on grade foundation

Building with crawl space

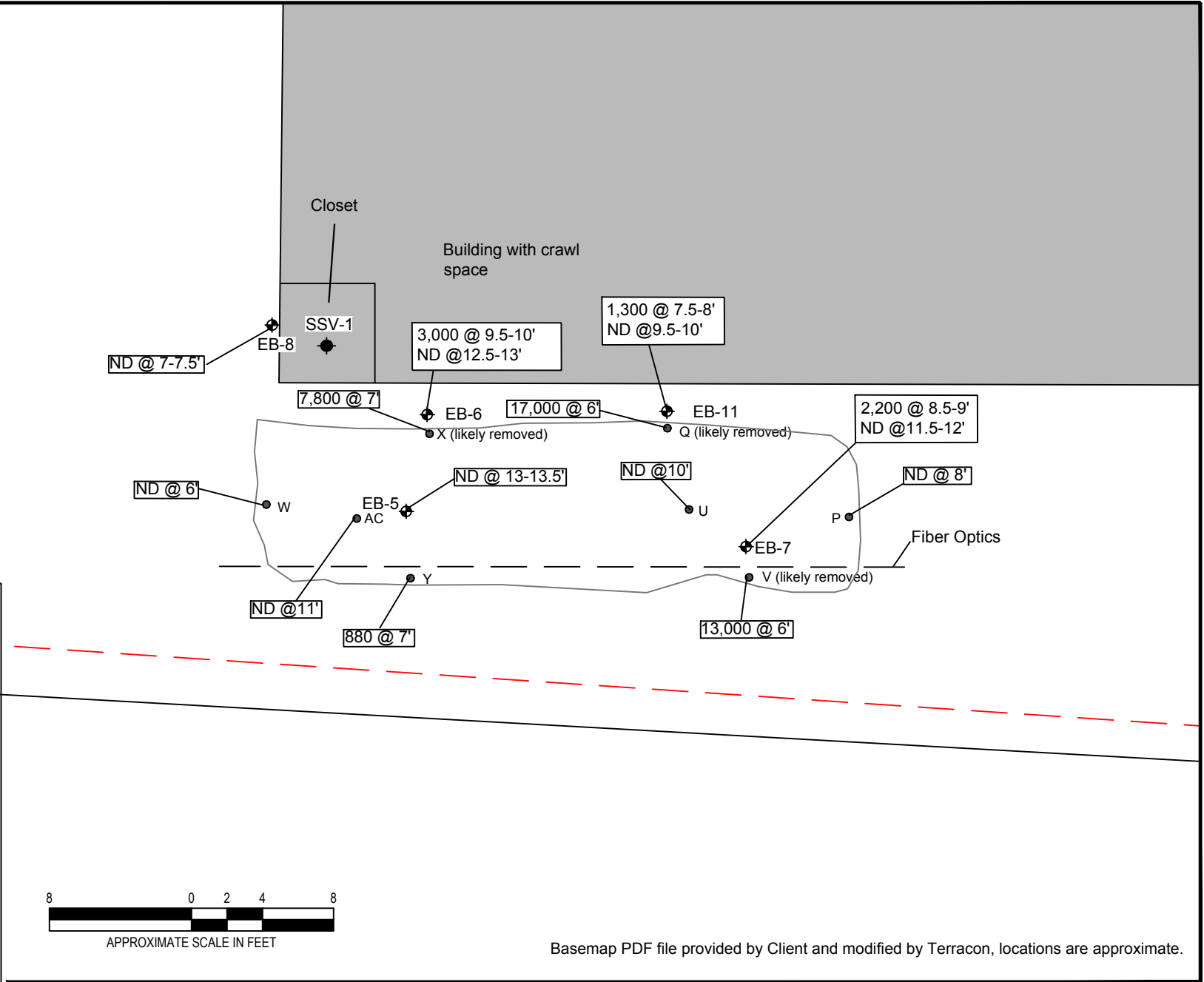
LEGEND







-  APPROXIMATE UST EXCAVATION (SEATTLE TANK SERVICES-OCTOBER 2011)
  -  APPROXIMATE LOCATION OF FORMER UNDERGROUND STORAGE TANK, SEATTLE TANK SERVICES, OCTOBER 2011
  -  TERRACON SUB-SLAB SOIL VAPOR APPROXIMATE LOCATION
  -  APPROXIMATE SEATTLE TANK SERVICES, OCTOBER 2011 SOIL SAMPLE LOCATION AND DEPTH (feet bgs) WITH DIESEL CONCENTRATION (mg/kg) SEATTLE TANK SERVICES (OCTOBER 2011) - IN PLACE
  -  APPROXIMATE TERRACON SOIL BORING LOCATION WITH DIESEL CONCENTRATION (mg/kg) AND DEPTH OF SAMPLE (feet bgs)
  -  APPROXIMATE TERRACON SOIL BORING LOCATION WITH DIESEL CONCENTRATION (mg/kg) AND DEPTH OF SAMPLE (feet bgs)
- ND=Non-detect  
Black concentration=below  
MTCA, site specific cleanup level

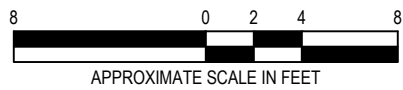


GIBRALTAR SENIOR LIVING 10816 18th Avenue East Tacoma, Pierce County, Washington	
SITE DIAGRAM UST #2 - 675 GALLON TANK	
DATE: JANUARY 2017	Job No. 1757.24
Zipper Geo Associates, LLC 19023 36th Ave. W., Suite D Lynnwood, WA	EXHIBIT SHT. 1 of 1


REFERENCE ADAPTED FROM EXHIBIT 4 OF TERRACON SUPPLEMENTAL SITE CHARACTERIZATION REPORT, DATED AUGUST 29, 2016.



- LEGEND:**
-  APPROXIMATE UST EXCAVATION (SEATTLE TANK SERVICES-OCTOBER 2011)
  -  APPROXIMATE LOCATION OF FORMER UNDERGROUND STORAGE TANK, SEATTLE TANK SERVICES, OCTOBER 2011
  -  TERRACON SUB-SLAB SOIL VAPOR APPROXIMATE LOCATION
  -  APPROXIMATE SEATTLE TANK SERVICES, OCTOBER 2011 SOIL SAMPLE LOCATION AND DEPTH (feet bgs) WITH DIESEL CONCENTRATION (mg/kg) SEATTLE TANK SERVICES (OCTOBER 2011) - IN PLACE
  -  AH
  -  APPROXIMATE TERRACON SOIL BORING LOCATION WITH DIESEL CONCENTRATION (mg/kg) AND DEPTH OF SAMPLE (feet bgs)
  - ND=Non-detect  
Black concentration=below MTCA, site specific cleanup level



Basemap PDF file provided by Client and modified by Terracon, locations are approximate.

Project Mngr:	LAR	Project No.:	B2157004	 <b>Terracon</b> Consulting Engineers and Scientists <small>21905 64th Avenue W., Ste 100 Mountlake Terrace, WA 98043          PH. (425) 771-3304 FAX. (425) 771-3549</small>	<b>SITE DIAGRAM UST#3</b> Gibraltar Senior Living 10816 18th Avenue East Tacoma, Pierce County, Washington	<b>EXHIBIT</b>  <b>5</b>
Drawn By:	AMP	Scale:	AS SHOWN			
Checked By:	LAR	File No.:	Exhibit 5			
Approved By:	HRG	Date:	July 2016			

## **Enclosure B**

Comments on *ZGA's Vapor Intrusion Mitigation Plan*, dated February 28, 2017

1. If implemented, Ecology has the following comments regarding the proposed SMDS:
  - a. Prior to construction, Site-specific drawing(s) for the SMDS should be developed, and finalized per WAC 173-340-840(3).
  - b. Obtain all necessary permits as required by WAC 173-340-710(9).
  - c. Provide the estimated square footage of the crawl space.
  - d. Based on the square footage of the crawl space, one suction point for the SMDS may be sufficient. However, more than one suction point may need to be considered if there are building footings or other obstructions within the crawl space footprint.
  - e. Consider if the crawl space requires leveling before SMDS construction via grading and/or spreading a layer of sand.
  - f. Clarify the adequacy of using a single 3” diameter PVC pipe and fan for depressurizing the crawl space instead of another diameter or pipe or multiple pipes.
  - g. Clarify the capacity of each SMDS fan. Discuss if fan capacity is sufficient to overcome condensation build up on the fan and still function as proposed.
  - h. Verify if fan noise and vibration conditions at normal operation require any mitigation for residents.
  - i. Discuss how and from where the SMDS will be powered.
  - j. Consider, to the extent feasible, sealing any cracks in the floor above the crawl space in order to minimize the potential for vapor intrusion into occupied spaces.
  - k. Consider if drainage for moisture build up will be necessary in order to prevent system degradation.
  - l. A backdraft evaluation may be necessary prior to SMDS installation to determine if potential vapor migration along preferential pathways into indoor air is a concern.
    - i. An example of procedures for backdraft testing is presented in ASTM E1998-11, *Standard Guide for Assessing Depressurization-Induced Backdrafting and Spillage from Vented Combustion Appliances*.
  - m. Discharging contaminated vapors to air may be subjected to review and permitting by the Puget Sound Clean Air Agency (PSCAA) per Chapter 70.94 RCW. Ecology recommends contacting PSCAA in order to determine if a notice of intent or an air discharge permit is required for this vapor mitigation system.
    - i. <https://www.pscleanair.org/>
  - n. Consider potential leaks through utility penetrations – see Figure 2 in USEPA’s *Engineering Issue: Indoor Air Vapor Intrusion Mitigation Approaches* for a visual. Issue can be accessed here: <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100AE72.PDF?Dockey=P100AE72.PDF>
  - o. Install the 15 mil vapor barrier in accordance with manufacturer’s instructions/guidelines. All product seams and joints must overlap a minimum distance and sealed per manufacturer’s specifications. Any penetrations must also be sealed per manufacturer’s specifications.
  - p. Add to the mitigation plan the range of anticipated pressure to be maintained

- to be considered acceptable SMDS operation.
- q. Describe in greater detail the type of manometer (e.g., digital) to be used. Identify the frequency at which manometer readings would be recorded.
  - r. Describe how system components will be labeled or placarded and provide the primary contact information and notification process in the event of system failure.
  - s. Identify the specific location(s) of the vapor point sampling in relation to the crawl space.
  - t. There is no HVAC system in any building. Confirm the heating and cooling (if applicable) sources for the building adjacent to former UST #2, in order to evaluate if there might be a “stack effect” during cold periods which would require adjustment to any compliance sampling.
  - u. Clarify if the air sampling proposed will be grab samples or timed (e.g., 8 hour) samples.
  - v. Per manufacturers’ instructions and EPA guidance<sup>1</sup>, complete a leak test after installation of the vapor barrier to ensure there are no leaks.
  - w. Fix any leaks identified by the leak test.
  - x. In order to confirm the SMDS is adequately functioning, in addition to the crawl space and ambient air samples proposed in section 4.0 of the *Vapor Intrusion Mitigation Plan*, sample indoor air at least once after system startup near former UST #2. Analyze for naphthalenes using either USEPA Method TO-15 or TO-17.
    - i. For guidance, consider ASTM, 2015, *Standard Guide for Application of Engineering Controls to Facilitate Use of Re-development of Chemical-Affected Properties, E2435-05*.
    - ii. Revise the mitigation plan to describe the process for and frequency of system inspections and compliance<sup>2</sup> sampling beyond the initial sampling after installation.
    - iii. Consider Site-specific “worst case” scenario conditions based on seasonality (e.g., sampling during January/February).
  - y. If an environmental covenant is used at the Site, any required air sampling and system inspections details should be captured as part of a compliance plan attached to the covenant. Frequency of sampling and inspections shall be determined with Ecology’s concurrence, subject to revision under the periodic review process (at least every 5 years) as outlined in WAC 173-340-420.
  - z. After the system is installed, provide technical justification in the proposed *Vapor Intrusion Mitigation Report* for any changes to the design drawings during SMDS installation, as well as capture any field changes in an as-built drawing.
  - aa. Consider taking photographs before, during, and after the installation process and documenting selected images in the proposed *Vapor Intrusion Mitigation Report*.

---

<sup>1</sup> USEPA, *OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air*, June 2015.

<sup>2</sup> WAC 173-340-750(7).

## **Enclosure C**

### **Site Description and Figures**

# Site Description

The Property is Pierce County, Washington tax parcel no. 0319034012, with a street address of 10816 18<sup>th</sup> Avenue East. From the Pierce County Assessor's website, the legal description noted here is provided for reference only, and should be confirmed as part of any title search for an environmental/restrictive covenant on the parcel. The Property is improved with three commercial-type buildings, a three-story 7,529 square foot structure, a 2,169 square foot structure, and a 2,170 square foot structure. The Site is currently occupied by an assisted living and mental health facility (Gibraltar Senior Living).

Parcel legal description from the Pierce County Assessor's Website:

Section 03 Township 19 Range 03 Quarter 43 : BEG ON W LI OF PORTLAND AVE AT A PT 1038 FT N OF S LI OF SEC TH PAR WITH SD S LI N 88 DEG 34 MIN W 337 FT TH N 01 DEG 42 MIN E 229.41 FT TH S 88 DEG 34 MIN E 78.55 FT TH S 64 DEG 48 MIN E 115 FT TH S 87 DEG 48 MIN E 153 FT TO SD W LI OF PORTLAND AVE TH S 01 DEG 42 MIN W 181 FT TO BEG EXC W 25 FT THEREOF EASE OF RECORD

Parcel no. 0319034012 is improved with three buildings: a three-story 7,529 square feet structure (built in 1920), a one story 2,169 square feet structure (built in 1920), and a one story 2,170 square feet structure (built in 1960). The Property is currently occupied by an assisted living and mental health facility (Gibraltar Senior Living).

Three steel USTs historically used for heating oil were removed and disposed of off-Site in 2011. The USTs were:

<u>UST ID Number</u>	<u>Capacity (gallons)</u>
1	1,000
2	675
3	675

Soils underlying the Site generally consist of 1 to 5 feet of silty-sand with trace gravel material, underlain by a sandy silt to the maximum depth explored of 15 feet bgs. Groundwater beneath the Site, when encountered, has been observed at depths ranging between 5.5 to 14 feet bgs. Drilling refusal was met in multiple borings between 9 and 13 feet bgs.

According to the Pierce County Assessor-Treasurer website, the adjacent parcel to the south is 0319034000, occupied by Franklin Pierce High School.



Former 675-gallon heating oil UST (UST #2)

Slab-on-grade mechanical closet

Building with crawl space

EB-3  
EB-4  
EB-2

EB-18  
EB-10  
EB-15

CS-1

Ambient

Grass

Asphalt Parking

Driveway

Former 1,000-gallon heating oil UST (UST#1)

EB-20  
EB-12  
EB-13

SSV-3

EB-9

Approximate basement extent

Building with basement

Stairs

EB-17

Walkway

HA-1

Slab-on-grade mechanical closet

Building with crawl space

EB-8

SSV-2

EB-6

EB-11

EB-5

EB-7







Former 675-gallon heating oil UST (UST #3)

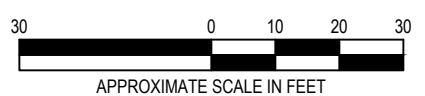
Franklin Pierce High School

EB-16

18th Avenue E

**LEGEND:**

-  APPROXIMATE SITE BOUNDARY
-  **EB-1** SOIL BORING APPROXIMATE LOCATION
-  **HA-1** HAND AUGER BORING APPROXIMATE LOCATION
-  **SSV-1** SUB-SLAB SOIL VAPOR APPROXIMATE LOCATION
-  **CS-1** CRAWL SPACE/AMBIENT AIR SAMPLE LOCATION
-  **UST** APPROXIMATE LOCATION OF FORMER UNDERGROUND STORAGE TANK (UST)



Project Mgr:	MYW	Project No.	B2157004
Drawn By:	AMP	Scale:	Not to Scale
Checked By:	LAR	File No.	Exhibit 2
Approved By:	LAR	Date:	July 2016

**Terracon**  
Consulting Engineers and Scientists

21905 64th Avenue W, Ste 100 Mountlake Terrace, WA 98043  
PH. (425) 771-3304 FAX. (425) 771-3549

**SITE DIAGRAM**  
Gibraltar Senior Living  
10816 18th Avenue East  
Tacoma, Pierce County, Washington

## **Enclosure D**

### **Email Correspondence**

**From:** [Mullin, Tim \(ECY\)](#)  
**To:** [Doctor, Erica](#)  
**Cc:** [vbl@gibraltarseniorliving.com](mailto:vbl@gibraltarseniorliving.com); [Liz Rachman](#)  
**Subject:** RE: Gibraltar turnaround time  
**Date:** Friday, December 01, 2017 10:25:00 AM  
**Attachments:** [2017.11.28\\_SW1472\\_Gibraltar\\_Senior\\_Living\\_FA\\_letter.pdf](#)  
[image001.png](#)  
[image002.png](#)

---

Please see Ecology's opinion attached regarding the SW1472 off-Site groundwater at EB-16. Hopefully will receive the hard copy today. A separate opinion for the Property soil and air/vapor is in process, as identified below.

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager  
Southwest Region – Toxics Cleanup Program  
Washington State Department of Ecology  
300 Desmond Drive Southeast  
Lacey, WA 98503  
360-407-6265  
[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

**From:** Mullin, Tim (ECY)  
**Sent:** Wednesday, November 22, 2017 4:46 PM  
**To:** 'Doctor, Erica' <[edoctor@vjglaw.com](mailto:edoctor@vjglaw.com)>  
**Cc:** [vbl@gibraltarseniorliving.com](mailto:vbl@gibraltarseniorliving.com); [Liz Rachman <lrachman@atlasgeonw.com>](mailto:Liz.Rachman@atlasgeonw.com)  
**Subject:** RE: Gibraltar turnaround time

Hi Erica,

Thank you for the message. Here is where Ecology is at with SW1472:

- 1) A brief letter providing Ecology's comments regarding the off-Property groundwater contamination at EB-16 is with our admin. Once the letter is formatted, I will sign it (hopefully by the end of next week). This letter has been drafted separately so it could be returned sooner.
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  - b. I have a few clarification questions regarding the recent air sampling report for Liz Rachman and I hope to discuss those with her next week.

Thank you,  
Tim

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Hi Tim,  
I wanted to follow up on the NFA-likely letter for the Gibraltar site. How are things looking?

Thank you!

Best regards,

Erica

Erica A. Doctor  
Attorney at Law  
Direct: 253-591-8563



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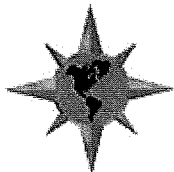
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Thanks!  
Liz

Elizabeth Rachman, L.G., L.Hg.  
Vice President, Principal Hydrogeologist



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**Attachments:** [image001.png](#)  
[image002.png](#)

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Thank you!

Best regards,

Erica

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Direct: 253-591-8563



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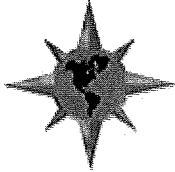
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Vice President, Principal Hydrogeologist



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**Subject:** RE: Gibraltar turnaround time  
**Date:** Tuesday, November 21, 2017 3:21:41 PM  
**Attachments:** [image002.png](#)  
[image003.png](#)

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Best regards,

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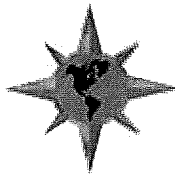
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**To:** [Liz Rachman](#)  
**Cc:** [vbl@gibaltarseniorliving.com](mailto:vbl@gibaltarseniorliving.com); [Doctor, Erica](#)  
**Subject:** RE: Gibraltar turnaround time  
**Date:** Tuesday, October 24, 2017 7:22:00 AM  
**Attachments:** [image001.png](#)

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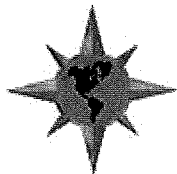
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**From:** [Mullin, Tim \(ECY\)](#)  
**To:** [Liz Rachman](#)  
**Cc:** [edoctor@vjglaw.com](mailto:edoctor@vjglaw.com); [Vinson Latimore](#)  
**Subject:** RE: Gibraltar Senior Living - VCP No. SW1472  
**Date:** Monday, October 16, 2017 7:32:00 AM  
**Attachments:** [image001.png](#)

---

On behalf of Ecology, I acknowledge receipt of ZGA's *Crawlspace Air Sampling Report* dated October 6, 2017. An opinion request is noted, and this request is second in my queue. I will keep an eye out for the two hard copies of the air sampling report.

Thank you,  
Tim

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager  
Southwest Region – Toxics Cleanup Program  
Washington State Department of Ecology  
300 Desmond Drive Southeast  
Lacey, WA 98503  
360-407-6265  
[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

---

**From:** Liz Rachman [<mailto:lrachman@atlasgeonw.com>]  
**Sent:** Thursday, October 12, 2017 3:44 PM  
**To:** Mullin, Tim (ECY) <[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)>  
**Cc:** [edoctor@vjglaw.com](mailto:edoctor@vjglaw.com); [Vinson Latimore <vbl@gibaltarseniorliving.com>](mailto:Vinson.Latimore@gibaltarseniorliving.com)  
**Subject:** Gibraltar Senior Living - VCP No. SW1472

Tim,

Attached please find an air sampling report for the Gibraltar Senior Living site in Tacoma, WA. Our client would like to pursue an NFA without a restrictive covenant, and we are looking forward to Ecology's feedback.

Thank you!  
Liz

Elizabeth Rachman, L.G., L.Hg.  
Vice President, Principal Hydrogeologist



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**From:** [Liz Rachman](#)  
**To:** [Mullin, Tim \(ECY\)](#)  
**Subject:** Re: SW1472 - Gibraltar Senior Living  
**Date:** Wednesday, October 04, 2017 1:57:16 PM

---

Thanks Tim!

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---

**From:** Mullin, Tim (ECY) <TMUL461@ECY.WA.GOV>  
**Sent:** Wednesday, October 4, 2017 1:29:13 PM  
**To:** Liz Rachman  
**Subject:** SW1472 - Gibraltar Senior Living

Hi Liz,

I received your voicemail regarding SW1472 – Gibraltar Senior Living. I recommend submitting the vapor intrusion report. Right now, that review would be second in my queue. Should be able to get to it shortly.

On 9/14, I drafted a response for the EB-16 off-Site petroleum in groundwater inquiry, and charged 0.5 hours. That email response became a memo, which I think I mentioned in our recent call. I haven't charged any more time to SW1472 for the memo, so your client should see a bill sometime around October 15<sup>th</sup> for only the 0.5 hour charge. I still plan in submitting the memo and the vapor intrusion report response as separate documents. Please advise if your client wants to combine the documents. For consistency with Ecology's procedures, each document will be formatted similar to the typical opinion letter format.

---

Thank you,  
Tim

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager  
Southwest Region – Toxics Cleanup Program  
Washington State Department of Ecology  
300 Desmond Drive Southeast  
Lacey, WA 98503  
360-407-6265  
[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

**From:** [Mullin, Tim \(ECY\)](#)  
**To:** [Elizabeth Rachman](#)  
**Subject:** SW1472 - Gibraltar Senior Living  
**Date:** Tuesday, September 19, 2017 2:44:00 PM  
**Attachments:** [SW1472-Ecology email May 2-16.pdf](#)

---

Hi Liz,

Please see the attached email I have from Ecology's Site file, dated May 2, 2016. I highlighted the important paragraph from the email in yellow.

Ecology believes additional data is needed to determine the origin of the petroleum hydrocarbon contamination at EB-16. A draft memorandum is about ready to go into Ecology management review with recommendations for options to make the appropriate demonstration, and I propose to send the memo separately (so as not to hold it for the anticipated vapor opinion).

My current opinion turnaround right now is about 90 days. I am have three opinions in my queue as of 9/19/17, but I still am awaiting information requested from each of them, so new opinions received might get moved up if information isn't received as requested. I can provide feedback earlier as warranted once I have a chance to review the air sampling report and data.

Thanks,  
Tim

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager  
Southwest Region – Toxics Cleanup Program  
Washington State Department of Ecology  
300 Desmond Drive Southeast  
Lacey, WA 98503  
360-407-6265  
[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

**From:** [Mullin, Tim \(ECY\)](#)  
**To:** [Elizabeth Rachman](#)  
**Subject:** RE: SW1472 - phone call summary  
**Date:** Tuesday, August 08, 2017 6:54:00 AM  
**Attachments:** [image001.png](#)

---

Thanks for the update!

**From:** Elizabeth Rachman [mailto:[erachman@zippergeo.com](mailto:erachman@zippergeo.com)]  
**Sent:** Monday, August 07, 2017 4:51 PM  
**To:** Mullin, Tim (ECY) <[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)>  
**Subject:** RE: SW1472 - phone call summary

Hi Tim,

I concur with your phone call summary below. The duration of the sampling was 8 hours. I haven't had a chance to go through my notes on barometric pressure, etc., but will do so this week some time. I will also be contacting the client regarding the draft NFA Likely letter this week and will circle back to you.

Thanks Tim!  
Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Hydrogeologist**

**ZipperGeo**  
Geoprofessional Consultants

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Lynnwood, WA 98036  
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Cell: 206-715-2136  
[erachman@zippergeo.com](mailto:erachman@zippergeo.com)  
[www.zippergeo.com](http://www.zippergeo.com)

**From:** Mullin, Tim (ECY) [mailto:[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)]  
**Sent:** Wednesday, August 2, 2017 3:35 PM  
**To:** Elizabeth Rachman <[erachman@zippergeo.com](mailto:erachman@zippergeo.com)>  
**Subject:** SW1472 - phone call summary

Hi Liz,

Thank you for taking my call today regarding SW1472, Gibraltar Senior Living. Please let me know if you recollect the below differently.

- 1) ZGA did some more sampling for naphthalenes in air in the crawl space adjacent to former UST #2, using EPA Method TO-15, and obtained non-detect results. The laboratory MDL exceeded the MTCA Method B screening level for naphthalene in air at approximately:

<0.803 ug/m vs 0.0735 ug/m.

- 2) Previous air sampling at the Site was completed in October 2015. Naphthalene was detected at concentrations exceeding the MTCA Method B screening level in the air in the crawl space adjacent to former UST #2.
- 3) Briefly discussed some other possible reasons for the different results, and you planned to check your notes regarding weather conditions, barometric pressure, etc. to see if there might be some insight there.
- 4) We discussed potential contributing source of naphthalene to crawl space air from the Franklin Pierce bus barn adjacent to the Property to the west. No buses were operating during the most recent sampling event.
- 5) Ecology indicated that data where the laboratory MDL exceeds the MTCA screening level is generally not acceptable.
  - a. However, there are exceptions under WAC 173-340-707.
  - b. Historical PQLs/MDLs for naphthalene in air data which exceeded the MTCA Method B screening level (near UST #1 and #2 in October 2015) had previously been accepted by Ecology.
- 6) Ecology suggested any additional sampling use both TO-15 and TO-17 for naphthalene in air at the same time in case the issue obtaining the screening level is the result of the method.
  - a. If additional sampling results are below the MTCA Method B screening level, Ecology would be willing to discuss next steps instead of immediately requiring the mitigation system. Additional sampling might be necessary.
- 7) The draft opinion is a property specific NFA likely.
  - a. Presumes an environmental covenant for the property and installation of the vapor mitigation system.
  - b. Additional Site investigation is requested by Ecology to address off-Property petroleum in groundwater contamination at EB-16.
  - c. Going to hold the opinion unless your client requests its finalization.

**Follow up question: What was the duration of the air samples collected (e.g., 8 hour)?**

Thank you,  
Tim

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager  
Southwest Region – Toxics Cleanup Program  
Washington State Department of Ecology  
300 Desmond Drive Southeast  
Lacey, WA 98503  
360-407-6265  
[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

**From:** [Elizabeth Rachman](#)  
**To:** [Mullin, Tim \(ECY\)](#)  
**Subject:** RE: SW1472 Gibraltar Senior Living - mitigation plan and opinion request  
**Date:** Thursday, March 16, 2017 5:21:23 PM  
**Attachments:** [image004.png](#)  
[image005.png](#)  
[image001.png](#)

---

Hi Tim,

Happy Thursday! I'm curious as to whether you've heard back anything on this?

Thanks!

Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Hydrogeologist**

**ZipperGeo**  
Geoprofessional Consultants

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Cell: 206-715-2136  
[erachman@zippergeo.com](mailto:erachman@zippergeo.com)  
[www.zippergeo.com](http://www.zippergeo.com)

---

**From:** Mullin, Tim (ECY) [<mailto:TMUL461@ECY.WA.GOV>]  
**Sent:** Tuesday, March 7, 2017 6:43 AM  
**To:** Elizabeth Rachman <[erachman@zippergeo.com](mailto:erachman@zippergeo.com)>  
**Subject:** RE: SW1472 Gibraltar Senior Living - mitigation plan and opinion request

---

Generally, engineering work has to be submitted under seal of a Washington State professional engineer, as required by WAC 173-340-840(3). However, I have passed this question up the chain to see if it is necessary in this specific case. Thanks.

---

**From:** Elizabeth Rachman [<mailto:erachman@zippergeo.com>]  
**Sent:** Friday, March 03, 2017 11:05 AM  
**To:** Mullin, Tim (ECY) <[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)>  
**Cc:** Vinson Latimore <[vbl@gibraltarseniorliving.com](mailto:vbl@gibraltarseniorliving.com)>; Erica Doctor <[erica@ericadoctorlaw.com](mailto:erica@ericadoctorlaw.com)>  
**Subject:** RE: SW1472 Gibraltar Senior Living - mitigation plan and opinion request

Hi Tim,

We do not anticipate submitting certified design drawings as part of the Plan. Would this be required by Ecology?

Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Hydrogeologist**

**ZipperGeo**  
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[erachman@zippergeo.com](mailto:erachman@zippergeo.com)  
[www.zippergeo.com](http://www.zippergeo.com)

**From:** Mullin, Tim (ECY) [<mailto:TMUL461@ECY.WA.GOV>]  
**Sent:** Thursday, March 2, 2017 9:19 AM  
**To:** Elizabeth Rachman <[erachman@zippergeo.com](mailto:erachman@zippergeo.com)>  
**Subject:** RE: SW1472 Gibraltar Senior Living - mitigation plan and opinion request

Hi Liz,

Thank you for the documents. For the *Vapor Intrusion Mitigation Plan*, it appears that this is a final plan and not a draft. If my understanding is correct, please submit one additional hard copy to meet the three copies required by WAC 173-340-840(2).

Are any certified design drawings anticipated to be submitted for the proposed sub-membrane depressurization system?

Thank you,  
Tim

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager  
Southwest Region – Toxics Cleanup Program  
Washington State Department of Ecology  
300 Desmond Drive Southeast  
Lacey, WA 98503  
360-407-6265  
[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

**From:** Elizabeth Rachman [<mailto:erachman@zippergeo.com>]  
**Sent:** Wednesday, March 01, 2017 12:50 PM  
**To:** Mullin, Tim (ECY) <[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)>  
**Cc:** Erica Doctor <[erica@ericadoctorlaw.com](mailto:erica@ericadoctorlaw.com)>; Vinson Latimore <[vbl@gibraltarseniorliving.com](mailto:vbl@gibraltarseniorliving.com)>;  
Jon Einarsen <[jeinarsen@zippergeo.com](mailto:jeinarsen@zippergeo.com)>  
**Subject:** SW1472 Gibraltar Senior Living - mitigation plan and opinion request

Good afternoon Tim:

Attached please find a Vapor Intrusion Mitigation Plan and an Opinion Request form for the Gibraltar Senior Living site in Tacoma, WA. One hard copy will follow in the mail.

We are requesting an NFA or NFA Likely letter based on the complete site characterization summarized in the Supplemental Site Characterization Report that was submitted to you via email on January 9, 2017, and the attached mitigation plan that will address the naphthalene detected in the crawl space air beneath one of the site buildings.

Please feel free to contact me with any questions.

Thank you!

Liz

**Elizabeth Rachman, L.G., L.Hg.**

**Senior Hydrogeologist**

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Cell: 206-715-2136

[erachman@zippergeo.com](mailto:erachman@zippergeo.com)

[www.zippergeo.com](http://www.zippergeo.com)

**From:** [Elizabeth Rachman](#)  
**To:** [Mullin, Tim \(ECY\)](#)  
**Cc:** [Erica Doctor](#); [Vinson Latimore](#); [Jon Einarsen](#)  
**Subject:** RE: SW1472 Gibraltar Senior Living - mitigation plan and opinion request  
**Date:** Tuesday, March 07, 2017 9:54:33 AM  
**Attachments:** [image004.png](#)  
[image005.png](#)  
[image001.png](#)

---

Thanks for checking on that Tim!

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Hydrogeologist**

**ZipperGeo**  
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**Sent:** Tuesday, March 7, 2017 6:43 AM  
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**Sent:** Friday, March 03, 2017 11:05 AM  
**To:** Mullin, Tim (ECY) <[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)>  
**Cc:** [Vinson Latimore <vbl@gibaltarseniorliving.com>](mailto:vbl@gibaltarseniorliving.com); [Erica Doctor <erica@ericadoctorlaw.com>](mailto:erica@ericadoctorlaw.com)  
**Subject:** RE: SW1472 Gibraltar Senior Living - mitigation plan and opinion request

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**Elizabeth Rachman, L.G., L.Hg.**  
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[www.zippergeo.com](http://www.zippergeo.com)

**From:** Mullin, Tim (ECY) [<mailto:TMUL461@ECY.WA.GOV>]  
**Sent:** Thursday, March 2, 2017 9:19 AM  
**To:** Elizabeth Rachman <[erachman@zippergeo.com](mailto:erachman@zippergeo.com)>  
**Subject:** RE: SW1472 Gibraltar Senior Living - mitigation plan and opinion request

Hi Liz,

Thank you for the documents. For the *Vapor Intrusion Mitigation Plan*, it appears that this is a final plan and not a draft. If my understanding is correct, please submit one additional hard copy to meet the three copies required by WAC 173-340-840(2).

Are any certified design drawings anticipated to be submitted for the proposed sub-membrane depressurization system?

Thank you,  
Tim

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager  
Southwest Region – Toxics Cleanup Program  
Washington State Department of Ecology  
300 Desmond Drive Southeast  
Lacey, WA 98503  
360-407-6265  
[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

**From:** Elizabeth Rachman [<mailto:erachman@zippergeo.com>]  
**Sent:** Wednesday, March 01, 2017 12:50 PM  
**To:** Mullin, Tim (ECY) <[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)>  
**Cc:** Erica Doctor <[erica@ericadoctorlaw.com](mailto:erica@ericadoctorlaw.com)>; Vinson Latimore <[vbl@gibaltarseniorliving.com](mailto:vbl@gibaltarseniorliving.com)>;  
Jon Einarsen <[jeinarsen@zippergeo.com](mailto:jeinarsen@zippergeo.com)>  
**Subject:** SW1472 Gibraltar Senior Living - mitigation plan and opinion request

Good afternoon Tim:

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Senior Living site in Tacoma, WA. One hard copy will follow in the mail.

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Please feel free to contact me with any questions.

Thank you!

Liz

**Elizabeth Rachman, L.G., L.Hg.**  
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[erachman@zippergeo.com](mailto:erachman@zippergeo.com)

[www.zippergeo.com](http://www.zippergeo.com)

**From:** [Elizabeth Rachman](#)  
**To:** [Mullin, Tim \(ECY\)](#)  
**Cc:** [Vinson Latimore](#); [Erica Doctor](#)  
**Subject:** RE: SW1472 Gibraltar Senior Living - mitigation plan and opinion request  
**Date:** Friday, March 03, 2017 11:05:03 AM  
**Attachments:** [image003.png](#)  
[image001.png](#)

---

Hi Tim,

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Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Hydrogeologist**

**ZipperGeo**  
Geoprofessional Consultants

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---

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**Sent:** Thursday, March 2, 2017 9:19 AM  
**To:** Elizabeth Rachman <[erachman@zippergeo.com](mailto:erachman@zippergeo.com)>  
**Subject:** RE: SW1472 Gibraltar Senior Living - mitigation plan and opinion request

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Tim

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager  
Southwest Region – Toxics Cleanup Program  
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360-407-6265  
[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

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**From:** Elizabeth Rachman [<mailto:erachman@zippergeo.com>]  
**Sent:** Wednesday, March 01, 2017 12:50 PM  
**To:** Mullin, Tim (ECY) <[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)>  
**Cc:** Erica Doctor <[erica@ericadoctorlaw.com](mailto:erica@ericadoctorlaw.com)>; Vinson Latimore <[vbl@gibraltarseniorliving.com](mailto:vbl@gibraltarseniorliving.com)>;  
Jon Einarsen <[jeinarsen@zippergeo.com](mailto:jeinarsen@zippergeo.com)>  
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Please feel free to contact me with any questions.

Thank you!  
Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Hydrogeologist**

**ZipperGeo**  
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[www.zippergeo.com](http://www.zippergeo.com)

**From:** [Elizabeth Rachman](#)  
**To:** [Mullin, Tim \(ECY\)](#)  
**Cc:** [Erica Doctor](#); [Vinson Latimore](#); [Jon Einarsen](#)  
**Subject:** SW1472 Gibraltar Senior Living - mitigation plan and opinion request  
**Date:** Wednesday, March 01, 2017 12:50:44 PM  
**Attachments:** [image002.png](#)  
[1757.24 Vapor Mitigation Plan FINAL.pdf](#)  
[ECY Opinion Request 3-1-17.pdf](#)

---

Good afternoon Tim:

Attached please find a Vapor Intrusion Mitigation Plan and an Opinion Request form for the Gibraltar Senior Living site in Tacoma, WA. One hard copy will follow in the mail.

We are requesting an NFA or NFA Likely letter based on the complete site characterization summarized in the Supplemental Site Characterization Report that was submitted to you via email on January 9, 2017, and the attached mitigation plan that will address the naphthalene detected in the crawl space air beneath one of the site buildings.

Please feel free to contact me with any questions.

Thank you!  
Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Hydrogeologist**

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Cell: 206-715-2136  
[erachman@zippergeo.com](mailto:erachman@zippergeo.com)  
[www.zippergeo.com](http://www.zippergeo.com)

**From:** [Elizabeth Rachman](#)  
**To:** [Mullin, Tim \(ECY\)](#)  
**Subject:** RE: VCP No. SW1472 - Supplemental Site Characterization report submittal  
**Date:** Wednesday, January 25, 2017 2:20:52 PM

---

Hi Tim,

Thanks for verifying receipt of the documents. Yes, we will request an opinion when the plan is submitted, which will likely be in the next couple weeks.

Thanks!

Liz

Elizabeth Rachman, L.G., L.Hg.  
Senior Geologist

**Zipper Geo Associates, LLC**

19023 36<sup>TH</sup> Avenue West, Suite D  
Lynnwood, WA 98036  
Phone: 425-582-9928  
Cell: 206-715-2136  
[erachman@zippergeo.com](mailto:erachman@zippergeo.com)  
[www.zippergeo.com](http://www.zippergeo.com)

---

**From:** Mullin, Tim (ECY) [mailto:TMUL461@ECY.WA.GOV]  
**Sent:** Wednesday, January 25, 2017 8:35 AM  
**To:** Elizabeth Rachman <[erachman@zippergeo.com](mailto:erachman@zippergeo.com)>  
**Subject:** RE: VCP No. SW1472 - Supplemental Site Characterization report submittal

Hi Liz:

I received the electronic copy of the explanatory letter and the *Supplemental Site Characterization Report* on 1/9/17. One hard copy of the report was received by SWRO records on 1/24/17 (official date of receipt), and I received the second hard copy today, 1/25/17. I presume the request for Ecology's opinion will be made with submission of the vapor mitigation plan?

Thank you,  
Tim

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager  
Southwest Region – Toxics Cleanup Program  
Washington State Department of Ecology  
300 Desmond Drive Southeast  
Lacey, WA 98503

360-407-6265

[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

---

**From:** Elizabeth Rachman [<mailto:erachman@zippergeo.com>]

**Sent:** Monday, January 09, 2017 3:34 PM

**To:** Mullin, Tim (ECY) <[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)>

**Cc:** Erica Doctor <[erica@ericadoctorlaw.com](mailto:erica@ericadoctorlaw.com)>; Vinson Latimore <[vbl@gibraltarseniorliving.com](mailto:vbl@gibraltarseniorliving.com)>;  
Jon Einarsen <[jeinarsen@zippergeo.com](mailto:jeinarsen@zippergeo.com)>

**Subject:** VCP No. SW1472 - Supplemental Site Characterization report submittal

Hi Tim:

Attached please find the draft Supplemental Site Characterization report for the Gibraltar Senior Living site (VCP No. SW1472), prepared by Terracon. In addition, a cover letter is also attached, which has been prepared by Zipper Geo Associates, LLC (ZGA).

We spoke previously about this submittal. The project was overseen by me while I was employed at Terracon, but the draft report was issued after I left the firm. The files have since been transferred to me at ZGA; therefore, I have attached a ZGA cover letter signed by me attesting to the validity of the information contained in the report. Based on a previous email exchange between us, Ecology determined that this was an acceptable method of report submittal. ZGA is currently preparing the mitigation plan and will submit that to Ecology as soon as it is complete.

A hardcopy of the attached files will be sent in the mail tomorrow. Please feel free to contact me with any questions.

Thanks Tim!

Liz

Elizabeth Rachman, L.G., L.Hg.

Senior Geologist

**Zipper Geo Associates, LLC**

19023 36<sup>TH</sup> Avenue West, Suite D

Lynnwood, WA 98036

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Cell: 206-715-2136

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**From:** [Elizabeth Rachman](#)  
**To:** [Mullin, Tim \(ECY\)](#)  
**Cc:** [Erica Doctor](#); [Vinson Latimore](#); [Jon Einarsen](#)  
**Subject:** VCP No. SW1472 - Supplemental Site Characterization report submittal  
**Date:** Monday, January 09, 2017 3:33:59 PM  
**Attachments:** [Supp Site Char ECY Submittal Letter FINAL 1-9-17.pdf](#)  
[B2157004 DRAFT Supplemental LSI August 2016 - w ZGA figs 1-6-17.pdf](#)

---

Hi Tim:

Attached please find the draft Supplemental Site Characterization report for the Gibraltar Senior Living site (VCP No. SW1472), prepared by Terracon. In addition, a cover letter is also attached, which has been prepared by Zipper Geo Associates, LLC (ZGA).

We spoke previously about this submittal. The project was overseen by me while I was employed at Terracon, but the draft report was issued after I left the firm. The files have since been transferred to me at ZGA; therefore, I have attached a ZGA cover letter signed by me attesting to the validity of the information contained in the report. Based on a previous email exchange between us, Ecology determined that this was an acceptable method of report submittal. ZGA is currently preparing the mitigation plan and will submit that to Ecology as soon as it is complete.

A hardcopy of the attached files will be sent in the mail tomorrow. Please feel free to contact me with any questions.

Thanks Tim!

Liz

Elizabeth Rachman, L.G., L.Hg.  
Senior Geologist

**Zipper Geo Associates, LLC**

19023 36<sup>TH</sup> Avenue West, Suite D

Lynnwood, WA 98036

Phone: 425-582-9928

Cell: 206-715-2136

[erachman@zippergeo.com](mailto:erachman@zippergeo.com)

[www.zippergeo.com](http://www.zippergeo.com)

**From:** Elizabeth Rachman  
**To:** Mullin, Tim (ECY)  
**Cc:** Erica Doctor; Vinson Latimore  
**Subject:** RE: SW1472 - Gibraltar Senior Living  
**Date:** Monday, November 07, 2016 5:02:15 PM

---

Hi Tim,

Thank you for getting back to me on that. We will finalize the cover letter and submit the report to you as soon as possible.

Thanks!

Liz

Elizabeth Rachman, L.G., L.Hg.

Senior Geologist

**Zipper Geo Associates, LLC**

19023 36<sup>TH</sup> Avenue West, Suite D

Lynnwood, WA 98036

Phone: 425-582-9928

Cell: 206-715-2136

[erachman@zippergeo.com](mailto:erachman@zippergeo.com)

[www.zippergeo.com](http://www.zippergeo.com)

---

**From:** Mullin, Tim (ECY) [mailto:TMUL461@ECY.WA.GOV]

**Sent:** Monday, November 7, 2016 3:24 PM

**To:** Elizabeth Rachman <erachman@zippergeo.com>

**Subject:** RE: SW1472 - Gibraltar Senior Living

---

My opinion is that the proposed method of report submittal below is sufficient.

Thank you,

Tim

---

**From:** Elizabeth Rachman [mailto:[erachman@zippergeo.com](mailto:erachman@zippergeo.com)]

**Sent:** Monday, November 07, 2016 10:45 AM

**To:** Mullin, Tim (ECY) <[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)>

**Subject:** RE: SW1472 - Gibraltar Senior Living

Hi Tim,

Thank you for the follow up. Did you get a feeling on how we should submit the report to you? We feel comfortable attaching a cover letter to the draft report and having me sign and stamp the cover letter. If that works for you we can do that right away.

Thanks!  
Liz

Elizabeth Rachman, L.G., L.Hg.  
Senior Geologist

**Zipper Geo Associates, LLC**

19023 36<sup>TH</sup> Avenue West, Suite D  
Lynnwood, WA 98036  
Phone: 425-582-9928  
Cell: 206-715-2136  
[erachman@zippergeo.com](mailto:erachman@zippergeo.com)  
[www.zippergeo.com](http://www.zippergeo.com)

**From:** Mullin, Tim (ECY) [<mailto:TMUL461@ECY.WA.GOV>]  
**Sent:** Monday, November 7, 2016 9:50 AM  
**To:** Elizabeth Rachman <[erachman@zippergeo.com](mailto:erachman@zippergeo.com)>  
**Subject:** SW1472 - Gibraltar Senior Living

Hi Liz,

Thank you for the phone call today regarding VCP #SW1472 – Gibraltar Senior Living. Please see my contact information below.

- As discussed, please submit the most recent site investigation data after determination of how the report submission should work.
- Submit the vapor mitigation plan as a separate document.
- If added to the queue today, SW1472 would be the 14<sup>th</sup> opinion letter request in my queue.

Thank you,  
Tim

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager  
Southwest Region – Toxics Cleanup Program  
Washington State Department of Ecology  
300 Desmond Drive Southeast  
Lacey, WA 98503  
360-407-6265  
[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

**From:** [Elizabeth Rachman](#)  
**To:** [Mullin, Tim \(ECY\)](#)  
**Subject:** RE: SW1472 - Gibraltar Senior Living  
**Date:** Monday, November 07, 2016 10:45:27 AM

---

Hi Tim,

Thank you for the follow up. Did you get a feeling on how we should submit the report to you? We feel comfortable attaching a cover letter to the draft report and having me sign and stamp the cover letter. If that works for you we can do that right away.

Thanks!

Liz

Elizabeth Rachman, L.G., L.Hg.  
Senior Geologist

**Zipper Geo Associates, LLC**

19023 36<sup>TH</sup> Avenue West, Suite D

Lynnwood, WA 98036

Phone: 425-582-9928

Cell: 206-715-2136

[erachman@zippergeo.com](mailto:erachman@zippergeo.com)

[www.zippergeo.com](http://www.zippergeo.com)

---

**From:** Mullin, Tim (ECY) [mailto:[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)]  
**Sent:** Monday, November 7, 2016 9:50 AM  
**To:** Elizabeth Rachman <[erachman@zippergeo.com](mailto:erachman@zippergeo.com)>  
**Subject:** SW1472 - Gibraltar Senior Living

---

Hi Liz,

Thank you for the phone call today regarding VCP #SW1472 – Gibraltar Senior Living. Please see my contact information below.

- As discussed, please submit the most recent site investigation data after determination of how the report submission should work.
- Submit the vapor mitigation plan as a separate document.
- If added to the queue today, SW1472 would be the 14<sup>th</sup> opinion letter request in my queue.

Thank you,  
Tim

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager

Southwest Region – Toxics Cleanup Program  
Washington State Department of Ecology  
300 Desmond Drive Southeast  
Lacey, WA 98503  
360-407-6265  
[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

**From:** [Mullin, Tim \(ECY\)](#)  
**To:** [Erica Doctor](#)  
**Cc:** [Elizabeth Rachman](#)  
**Subject:** RE: Gibraltar Senior Living  
**Date:** Wednesday, August 09, 2017 4:35:00 PM

---

Hi Erica,

Ecology has drafted a property-specific NFA likely (further action for the Site) opinion for VCP project SW1472. My understanding is that ZGA plans to discuss the recent air/vapor sampling results with Gibraltar Senior Living and discuss potential next steps. For now, Ecology is holding the opinion until you and ZGA have a chance to discuss, as the outcome may result in modifications to the text of the opinion.

Also, I received the notification that the Site data has been uploaded to Ecology's EIM database. I anticipate finishing my review of these data in EIM by the end of this week.

Thank you,  
Tim

---

**From:** Erica Doctor [mailto:[erica@ericadoctorlaw.com](mailto:erica@ericadoctorlaw.com)]  
**Sent:** Wednesday, August 09, 2017 2:53 PM  
**To:** Mullin, Tim (ECY) <[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)>  
**Subject:** Gibraltar Senior Living

Hi Tim,

I represent Gibraltar Senior Living, and wanted to follow up quickly regarding your review of the data for this Site and the issuance of an NFA or NFA-likely letter. When you have a second, would you please send along a quick update? Thanks so much!

Best,

Erica

Erica A. Doctor  
206.371.4720

\*\*\*\*\*

This message may contain confidential information and is intended only for the individual named. If you are not the named addressee, you should not disseminate, distribute or copy this e-mail. Please notify the sender immediately by e-mail if you have received this e-mail by mistake and delete this e-mail from your system.

**From:** [Elizabeth Rachman](#)  
**To:** [Mullin, Tim \(ECY\)](#)  
**Cc:** [Vinson Latimore](#); [Erica Doctor](#)  
**Subject:** RE: Gibraltar Senior Living - VCP No. SW1472  
**Date:** Monday, July 10, 2017 11:07:14 AM  
**Attachments:** [image003.png](#)  
[image001.png](#)

---

Thank you for the update Tim. I look forward to the opinion letter soon!

Thanks!

Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Hydrogeologist**

**ZipperGeo**  
Geoprofessional Consultants

19023 36<sup>TH</sup> Avenue West, Suite D  
Lynnwood, WA 98036  
Phone: 425-582-9928  
Cell: 206-715-2136  
[erachman@zippergeo.com](mailto:erachman@zippergeo.com)  
[www.zippergeo.com](http://www.zippergeo.com)

---

**From:** Mullin, Tim (ECY) [<mailto:TMUL461@ECY.WA.GOV>]  
**Sent:** Monday, July 10, 2017 8:07 AM  
**To:** Elizabeth Rachman <[erachman@zippergeo.com](mailto:erachman@zippergeo.com)>  
**Cc:** Vinson Latimore <[vbl@gibraltarseniorliving.com](mailto:vbl@gibraltarseniorliving.com)>; Erica Doctor <[erica@ericadoctorlaw.com](mailto:erica@ericadoctorlaw.com)>  
**Subject:** RE: Gibraltar Senior Living - VCP No. SW1472

Thanks for letting me know the EIM status. Should receive the internal EIM notification shortly so I can get the EIM data reviewed and finalized. I received a few internal review comments on the opinion letter at the end of last week and will be addressing those this week before returning it to review.

---

**From:** Elizabeth Rachman [<mailto:erachman@zippergeo.com>]  
**Sent:** Friday, July 07, 2017 2:59 PM  
**To:** Mullin, Tim (ECY) <[TMUL461@ECY.WA.GOV](mailto:TMUL461@ECY.WA.GOV)>  
**Cc:** Vinson Latimore <[vbl@gibraltarseniorliving.com](mailto:vbl@gibraltarseniorliving.com)>; Erica Doctor <[erica@ericadoctorlaw.com](mailto:erica@ericadoctorlaw.com)>  
**Subject:** Gibraltar Senior Living - VCP No. SW1472

Good afternoon Tim,

We have successfully completed the EIM upload of all of the data for this site. If I remember correctly, this was the last step needed to issue the NFA Likely letter.

Please feel free to contact me with any questions.

Thanks!

Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Hydrogeologist**

**ZipperGeo**  
Geoprofessional Consultants

19023 36<sup>TH</sup> Avenue West, Suite D

Lynnwood, WA 98036

Phone: 425-582-9928

Cell: 206-715-2136

[erachman@zippergeo.com](mailto:erachman@zippergeo.com)

[www.zippergeo.com](http://www.zippergeo.com)

**From:** [Acklam, Nicholas \(ECY\)](#)  
**To:** [Mullin, Tim \(ECY\)](#)  
**Cc:** [Bazan, Allyson \(ATG\)](#)  
**Subject:** FW: Gibraltar Senior Living, VCP No. SW1472  
**Date:** Wednesday, October 26, 2016 8:11:23 AM

---

Tim,

Here is the contact information for the Gibraltar Site. I will follow-up and let her know that you are now the site contact.

Thanks,  
Nick

**From:** Lybeer, Carol L [mailto:Carol.Lybeer@terracon.com]  
**Sent:** Tuesday, October 25, 2016 4:31 PM  
**To:** Acklam, Nicholas (ECY) <nack461@ECY.WA.GOV>  
**Cc:** Erica Doctor <erica@ericadoctorlaw.com>; Wheaton, Matt <Matt.Wheaton@terracon.com>  
**Subject:** Gibraltar Senior Living, VCP No. SW1472

Nick,

I left you another message this afternoon regarding Gibraltar Senior Living, VCP No. SW1472. I want to confirm with you that we provide you the appropriate information to review the site for an NFA Likely or NFA with Environmental Covenant determination. We have a Site Characterization Report completed, and we want to verify that the addition of a vapor mitigation plan would allow you to review this for an NFA Likely; if we include a draft environmental covenant along with the mitigation plan, that would allow you to review the site for an NFA with Environmental Covenant. Is this correct?

I look forward to speaking with you. Please call my cell phone in case I am away from my desk when you call (425-275-3855).

Regards,

Carol

**Carol Lybeer**  
**Senior Project Manager | Environmental Department**



21905 64<sup>th</sup> Ave. W., Ste 100, Mountlake Terrace, WA 98043  
D 425-697-1126 | F 425-771-3549 | M 425-275-3855  
[carol.lybeer@terracon.com](mailto:carol.lybeer@terracon.com) | [www.terracon.com](http://www.terracon.com)

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---

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**From:** [Acklam, Nicholas \(ECY\)](#)  
**To:** [Lybeer, Carol L](#)  
**Cc:** [Erica Doctor](#); [Wheaton, Matt](#); [Mullin, Tim \(ECY\)](#)  
**Subject:** RE: Gibraltar Senior Living, VCP No. SW1472  
**Date:** Wednesday, October 26, 2016 8:54:54 AM

---

Hi Carol,

Thank you for your time this morning. We look forward to receiving your report. Your site manager for this project is Tim Mullin and his contact information is below.

Tim Mullin, LG  
Voluntary Cleanup Program Site Manager  
Southwest Region – Toxics Cleanup Program  
Washington State Department of Ecology  
300 Desmond Drive Southeast  
Lacey, WA 98503  
360-407-6265  
[Tim.Mullin@ecy.wa.gov](mailto:Tim.Mullin@ecy.wa.gov)

Please feel to reach out if you need anything.

Thanks,  
Nick

Nicholas M. Acklam  
VCP/II-SHA/LUST Unit Supervisor  
Toxics Cleanup Program - Southwest Regional Office  
Washington State Department of Ecology  
Direct (360) 407-6347  
[nack461@ecy.wa.gov](mailto:nack461@ecy.wa.gov)

---

**From:** Lybeer, Carol L [mailto:[Carol.Lybeer@terracon.com](mailto:Carol.Lybeer@terracon.com)]  
**Sent:** Tuesday, October 25, 2016 4:31 PM  
**To:** Acklam, Nicholas (ECY) <[nack461@ECY.WA.GOV](mailto:nack461@ECY.WA.GOV)>  
**Cc:** Erica Doctor <[erica@ericadoctorlaw.com](mailto:erica@ericadoctorlaw.com)>; Wheaton, Matt <[Matt.Wheaton@terracon.com](mailto:Matt.Wheaton@terracon.com)>  
**Subject:** Gibraltar Senior Living, VCP No. SW1472

Nick,

I left you another message this afternoon regarding Gibraltar Senior Living, VCP No. SW1472. I want to confirm with you that we provide you the appropriate information to review the site for an NFA Likely or NFA with Environmental Covenant determination. We have a Site Characterization Report completed, and we want to verify that the addition of a vapor mitigation plan would allow you to review this for an NFA Likely; if we include a draft environmental covenant along with the mitigation

plan, that would allow you to review the site for an NFA with Environmental Covenant. Is this correct?

I look forward to speaking with you. Please call my cell phone in case I am away from my desk when you call (425-275-3855).

Regards,

Carol

**Carol Lybeer**  
**Senior Project Manager | Environmental Department**



21905 64<sup>th</sup> Ave. W., Ste 100, Mountlake Terrace, WA 98043

D 425-697-1126 | F 425-771-3549 | M 425-275-3855

**[carol.lybeer@terracon.com](mailto:carol.lybeer@terracon.com) | [www.terracon.com](http://www.terracon.com)**

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## Acklam, Nicholas (ECY)

---

**From:** Cook, Jason (ECY)  
**Sent:** Monday, May 02, 2016 9:16 AM  
**To:** Rachman, Liz A  
**Cc:** Acklam, Nicholas (ECY); vbl@gibraltarseniorliving.com  
**Subject:** RE: Gibraltar Senior Living

Liz:

You are welcome.

I will gladly clarify question one.

No need to address the chloroform vapor as part of the UST assessment. It was called out in the Opinion Letter I generated out of concern for the residents and potential exposure. Ecology recommends the source of the chloroform vapor is identified and addressed.

In addition, upon review of the chromatograms – comparing the on-Site and off-Site releases, It does not *appear* the off-Site groundwater release is associated with the release from Gibraltar. However, Ecology (the new Site manager) may require additional data and analysis.

Question two.

I cannot allude to the issuance of an NFA determination via email. Again, please characterize, delineate all CoCs, and illustrate in diagrams and cross-sections, and assure all pathways are closed/incomplete. At that point, an NFA consideration can be made.

Its been a pleasure working with you. Please be in contact with Nick Acklam in my absence.

Sincerely:

Jason G. Cook, LG  
Hydrogeologist 3  
Washington Department of Ecology  
SWRO/TCP/VCP  
360.407.6528

---

**From:** Rachman, Liz A [mailto:Liz.Rachman@terracon.com]  
**Sent:** Tuesday, April 26, 2016 3:01 PM  
**To:** Cook, Jason (ECY) <ASCO461@ECY.WA.GOV>; Acklam, Nicholas (ECY) <nack461@ECY.WA.GOV>  
**Cc:** Vinson Latimore <>; Erica A. Doctor - Phillips Burgess PLLC (edocto@phillipsburgesslaw.com) <edocto@phillipsburgesslaw.com>  
**Subject:** RE: Gibraltar Senior Living

Hi Jason,

Thank you for your quick review and response! Could you please provide clarification as to whether 1) Ecology concurs with omitting further chloroform vapor and off-site groundwater assessment, and 2) whether a successful soil delineation and lack of naphthalene in the air sample would result in a Property-Specific NFA?

Thanks!

Liz

Elizabeth Rachman, L.G., L.Hg.  
Senior Project Manager | Environmental

**Terracon**

3006 South 96<sup>th</sup> Street | Lakewood, WA 98499  
D (253) 382 3820 | F (253) 573 9959 | M (206) 715 2136  
[liz.rachman@terracon.com](mailto:liz.rachman@terracon.com) | [terracon.com](http://terracon.com)

---

**From:** Cook, Jason (ECY) [<mailto:ASCO461@ECY.WA.GOV>]  
**Sent:** Monday, April 25, 2016 4:19 PM  
**To:** Rachman, Liz A <[Liz.Rachman@terracon.com](mailto:Liz.Rachman@terracon.com)>  
**Cc:** Acklam, Nicholas (ECY) <[nack461@ECY.WA.GOV](mailto:nack461@ECY.WA.GOV)>  
**Subject:** Gibraltar Senior Living

Dear Liz:

Ecology has reviewed the Terracon *Responses to Ecology Further Action Opinion Letter*, dated April 12, 2016.

Ecology concurs with the proposed work plan outlined in the above-referenced document, entailing further vapor assessment and characterization.

Once the work is completed, please supply Ecology with a deliverable for review under the VCP Program. Also, assure that Terracon supplies the Ecology Site Manager with a scaled plume map and associated cross-sections, illustrating the magnitude and extent of subsurface contamination.

Thank you

Jason G. Cook, LG  
Hydrogeologist 3  
Washington Department of Ecology  
SWRO/TCP/VCP  
360.407.6528

Terracon provides environmental, facilities, geotechnical, and materials consulting engineering services delivered with responsiveness, resourcefulness, and reliability.

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**Cook, Jason (ECY)**

*(Call Wed 7/22 @ 2:10 PM)*

**From:** Rachman, Liz A <Liz.Rachman@terracon.com>  
**Sent:** Tuesday, July 21, 2015 4:04 PM  
**To:** Cook, Jason (ECY)  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

Sounds good! Yes, call the 3820 number. If, for some odd reason, I don't answer just call my cell number.

Thanks!  
Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Project Manager | Environmental Services**

**Terracon**  
3006 South 96<sup>th</sup> Street | Lakewood, WA 98499  
D (253) 382-3820 | O (253) 573 9939 | F (253) 573 9959 | M (206) 715 2136  
[liz.rachman@terracon.com](mailto:liz.rachman@terracon.com) | [terracon.com](http://terracon.com)

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---

**From:** Cook, Jason (ECY) [mailto:ASCO461@ECY.WA.GOV]  
**Sent:** Tuesday, July 21, 2015 2:58 PM  
**To:** Rachman, Liz A  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

Sure, how about 10:30? Call the 253.382.3820 number?

**Jason G. Cook, LG**  
**Hydrogeologist 3**  
**Washington Department of Ecology**  
**SWRO/TCP**  
**360.407.6528**

---

**From:** Rachman, Liz A [mailto:Liz.Rachman@terracon.com]  
**Sent:** Tuesday, July 21, 2015 2:55 PM  
**To:** Cook, Jason (ECY)  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

I'm pretty open between 10am and 5pm tomorrow. Does that work with your schedule?

Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Project Manager | Environmental Services**

**Terracon**  
3006 South 96<sup>th</sup> Street | Lakewood, WA 98499  
D (253) 382-3820 | O (253) 573 9939 | F (253) 573 9959 | M (206) 715 2136  
[liz.rachman@terracon.com](mailto:liz.rachman@terracon.com) | [terracon.com](http://terracon.com)

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**From:** Cook, Jason (ECY) [<mailto:ASCO461@ECY.WA.GOV>]  
**Sent:** Tuesday, July 21, 2015 1:11 PM  
**To:** Rachman, Liz A  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

Liz:

Hope all is well. Let me know a good time to talk and I can call you.

Take care

**Jason G. Cook, LG**  
**Hydrogeologist 3**  
**Washington Department of Ecology**  
**SWRO/TCP**  
**360.407.6528**

---

**From:** Rachman, Liz A [<mailto:Liz.Rachman@terracon.com>]  
**Sent:** Friday, July 17, 2015 12:22 PM  
**To:** Cook, Jason (ECY)  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

No. Our intention was to sample groundwater from EB-3. However, by the time we got down to 5 feet it was apparent to us that we were still within the excavation so we stopped and backed out of the hole. This is why we drilled EB-14 and sampled the groundwater in that location instead.

Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Project Manager | Environmental Services**

**Terracon**  
3006 South 96<sup>th</sup> Street | Lakewood, WA 98499  
D (253) 382-3820 | O (253) 573 9939 | F (253) 573 9959 | M (206) 715 2136  
[liz.rachman@terracon.com](mailto:liz.rachman@terracon.com) | [terracon.com](http://terracon.com)

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---

**From:** Cook, Jason (ECY) [<mailto:ASCO461@ECY.WA.GOV>]  
**Sent:** Thursday, July 16, 2015 4:44 PM  
**To:** Rachman, Liz A  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

Hey Liz...quick question. Is there data for EB-3?  
Thank you!

**Jason G. Cook, LG**  
**Hydrogeologist 3**  
**Washington Department of Ecology**  
**SWRO/TCP**  
**360.407.6528**

---

**From:** Rachman, Liz A [<mailto:Liz.Rachman@terracon.com>]  
**Sent:** Thursday, July 16, 2015 3:20 PM

**To:** Cook, Jason (ECY)  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

That sounds great. Thank you Jason!

Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Project Manager I Environmental Services**

**Terracon**  
3006 South 96<sup>th</sup> Street I Lakewood, WA 98499  
D (253) 382-3820 I O (253) 573 9939 I F (253) 573 9959 I M (206) 715 2136  
[liz.rachman@terracon.com](mailto:liz.rachman@terracon.com) I [terracon.com](http://terracon.com)

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---

**From:** Cook, Jason (ECY) [<mailto:ASCO461@ECY.WA.GOV>]  
**Sent:** Thursday, July 16, 2015 3:18 PM  
**To:** Rachman, Liz A  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

Hey Liz:

We are meeting on Tuesday, so should have a better idea on potential plans of attack, I'll set up a time to talk later next week, like Thursday ?

**Jason G. Cook, LG**  
**Hydrogeologist 3**  
**Washington Department of Ecology**  
**SWRO/TCP**  
**360.407.6528**

---

**From:** Rachman, Liz A [<mailto:Liz.Rachman@terracon.com>]  
**Sent:** Thursday, July 16, 2015 1:46 PM  
**To:** Cook, Jason (ECY)  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

Thanks Jason, I'll get what I can find to you. If you need any input from me for your meeting with the specialist, just let me know. When are you meeting?

Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Project Manager I Environmental Services**

**Terracon**  
3006 South 96<sup>th</sup> Street I Lakewood, WA 98499  
D (253) 382-3820 I O (253) 573 9939 I F (253) 573 9959 I M (206) 715 2136  
[liz.rachman@terracon.com](mailto:liz.rachman@terracon.com) I [terracon.com](http://terracon.com)

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---

**From:** Cook, Jason (ECY) [<mailto:ASCO461@ECY.WA.GOV>]  
**Sent:** Thursday, July 16, 2015 11:46 AM  
**To:** Rachman, Liz A  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

Hey Liz:

At this juncture, you can supply me with all you got. This Site may be a bit tricky. I'm meeting with our TCP headquarters specialist to attempt to find viable solutions, so any data is welcome.

Take care and talk soon.

**Jason G. Cook, LG**  
**Hydrogeologist 3**  
**Washington Department of Ecology**  
**SWRO/TCP**  
**360.407.6528**

---

**From:** Rachman, Liz A [<mailto:Liz.Rachman@terracon.com>]  
**Sent:** Thursday, July 16, 2015 11:04 AM  
**To:** Cook, Jason (ECY)  
**Cc:** [vbl@gibaltarseniorliving.com](mailto:vbl@gibaltarseniorliving.com)  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

Hi Jason:

I had a chance to discuss the site with Mr. Latimore yesterday. Apparently the building north of the Former UST #3 excavation has a basement. We are attempting to locate records regarding the depth of the foundation wall, to see if it extends below the depth of the affected soils. If it does, what documentation would you need to regarding the depth of the wall? A foundation plan? In the absence of that, a letter from Mr. Latimore with measurements? Something else?

Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Project Manager | Environmental Services**

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---

**From:** Cook, Jason (ECY) [<mailto:ASCO461@ECY.WA.GOV>]  
**Sent:** Thursday, July 9, 2015 8:18 AM  
**To:** Rachman, Liz A  
**Subject:** RE: Gibraltar Senior Living Limited Site Investigation Report

Good morning Liz!

Happy Thursday.

I know this is a rhetorical question, but do you intend to send me 2 copies of the report?

Thank you

**Jason G. Cook, LG**  
**Hydrogeologist 3**  
**Washington Department of Ecology**  
**SWRO/TCP**  
**360.407.6528**

---

**From:** Rachman, Liz A [<mailto:Liz.Rachman@terracon.com>]  
**Sent:** Wednesday, July 08, 2015 7:49 PM  
**To:** [vbl@gibraltarseniorliving.com](mailto:vbl@gibraltarseniorliving.com); Cook, Jason (ECY)  
**Subject:** Gibraltar Senior Living Limited Site Investigation Report

Gentlemen:

Below is a link to the final report for the Limited Site Investigation recently performed at the Gibraltar Senior Living property in Tacoma, Washington (VCP No. SW1472). Please feel free to contact me with any questions, or if you have trouble downloading the report.

<https://terracon.sharefile.com/d-s52706e05b5240248>

Thank you!  
Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Project Manager | Environmental Services**

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## Cook, Jason (ECY)

---

**From:** Cook, Jason (ECY)  
**Sent:** Wednesday, July 22, 2015 5:01 PM  
**To:** 'Rachman, Liz A'  
**Cc:** Perez, Richelle (ECY); Fox, Kelly (ECY)  
**Subject:** Gibraltar Senior Living facility (SW1472)

Liz:

It was nice speaking with you today regarding the Gibraltar Senior Living facility (Site) located at 10816 18<sup>th</sup> Avenue East, Tacoma, WA (SW1472). I reviewed the Site file and the most recent document supplied to Ecology:

- *Limited Site Investigation* (dated July 7, 2015).

In addition, we had a telephone conversation on July 22, 2015. During the conversation, I commented on the above-referenced document. Per your request, I am following up our conversation with this written response/e-mail.

Below is a list of comments and recommendations pertaining to the Site:

1. In accordance with WAC 173-340-7490, please complete a Terrestrial Ecological Evaluation (TEE) for the Site. Please fill out the TEE form and submit it to Ecology (along with supporting information, as appropriate). You can find the form on our website at <http://www.ecy.wa.gov/biblio/ecy090300.html>.
2. Enter all analytical data generated since August 2005 into the Environmental Information Management System (EIM).
3. Supply Ecology with hard/paper and electronic copies of all documents generated to date with respect to the Site.
4. Full characterization of the Site needs the following:
  - a. Further characterization off Property to the south of underground storage tank no. 3 (UST #3) and in the immediate vicinity of sample location "S" (UST #2) where a Total Petroleum Hydrocarbon-Diesel Range (TPH-Dx) was detected at 12,000 milligrams per kilogram (mg/Kg).
  - b. Groundwater sampling in each additional boring for TPH-Dx.
5. Once the Site is characterized, depict the magnitude and extent of contamination in both soil and groundwater horizontally and vertically in a diagram and cross-section, respectively.
6. Ecology recommends conducting a Tier I Vapor Intrusion Assessment as outlined in Ecology Publication no. 09-09-047, *Guidance for Evaluating Vapor Intrusion in Washington State: Investigation and Remedial Action*, October 2009. Please refer to the new vapor screening levels found in the MTCA Cleanup Levels and Risk Calculation (CLARC), and reference the Interstate Technology Regulatory Council (ITRC) publication *Petroleum Vapor Intrusion Fundamentals of Screening, Investigation, and Management*, October 2014 for additional guidance. Below is a hyperlink to the above-referenced ITRC publication <http://www.itrcweb.org/PetroleumVI-Guidance/Content/Resources/PVIPDF.pdf>.
7. Upon further evaluation, Ecology accepts the proposed MTCA Method B soil cleanup level of 8,027 mg/Kg.

Thank you for your participation in the Voluntary Cleanup Program. If you have any questions or concerns, please don't hesitate to contact me.

Regards:

**Jason G. Cook, LG**  
**Hydrogeologist 3**  
**Washington Department of Ecology**  
**SWRO/TCP**  
**360.407.6528**

## Cook, Jason (ECY)

---

**From:** Rachman, Liz A <Liz.Rachman@terracon.com>  
**Sent:** Sunday, August 30, 2015 10:27 PM  
**To:** Cook, Jason (ECY)  
**Subject:** RE: Gibraltar Senior Living facility (SW1472)

Hi Jason,

We are scoping out the follow-up work at this site. Would you be willing to take a peek at it before we do the work? I want to be sure that we are on the same page.

Also, I have a couple questions about the groundwater samples. Samples cannot be collected from the borings used for the vapor study, and wanted to be sure you were aware of that. In addition, in the location at UST#2 we are not proposing a groundwater sample – we are focused on addressing the lateral extent of the shallow impact identified there since we have the vertical extent already defined. It looks like the only question is south of that hit, is that what you are looking for? We will be collecting a groundwater sample from the boring south of UST#3.

Thanks!

Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Project Manager | Environmental Services**

### **Terracon**

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**From:** Cook, Jason (ECY) [mailto:ASCO461@ECY.WA.GOV]  
**Sent:** Wednesday, July 22, 2015 5:01 PM  
**To:** Rachman, Liz A  
**Cc:** Perez, Richelle (ECY); Fox, Kelly (ECY)  
**Subject:** Gibraltar Senior Living facility (SW1472)

Liz:

It was nice speaking with you today regarding the Gibraltar Senior Living facility (Site) located at 10816 18<sup>th</sup> Avenue East, Tacoma, WA (SW1472). I reviewed the Site file and the most recent document supplied to Ecology:

- *Limited Site Investigation* (dated July 7, 2015).

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1. In accordance with WAC 173-340-7490, please complete a Terrestrial Ecological Evaluation (TEE) for the Site. Please fill out the TEE form and submit it to Ecology (along with supporting information, as appropriate). You can find the form on our website at <http://www.ecy.wa.gov/biblio/ecy090300.html>.
2. Enter all analytical data generated since August 2005 into the Environmental Information Management System (EIM).

3. Supply Ecology with hard/paper and electronic copies of all documents generated to date with respect to the Site.
4. Full characterization of the Site needs the following:
  - a. Further characterization off Property to the south of underground storage tank no. 3 (UST #3) and in the immediate vicinity of sample location "S" (UST #2) where a Total Petroleum Hydrocarbon-Diesel Range (TPH-Dx) was detected at 12,000 milligrams per kilogram (mg/Kg).
  - b. Groundwater sampling in each additional boring for TPH-Dx.
5. Once the Site is characterized, depict the magnitude and extent of contamination in both soil and groundwater horizontally and vertically in a diagram and cross-section, respectively.
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7. Upon further evaluation, Ecology accepts the proposed MTCA Method B soil cleanup level of 8,027 mg/Kg.

Thank you for your participation in the Voluntary Cleanup Program. If you have any questions or concerns, please don't hesitate to contact me.

Regards:

**Jason G. Cook, LG**  
**Hydrogeologist 3**  
**Washington Department of Ecology**  
**SWRO/TCP**  
**360.407.6528**

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## Rose, Scott (ECY)

---

**From:** Rachman, Liz A [Liz.Rachman@terracon.com]  
**Sent:** Wednesday, May 20, 2015 2:01 PM  
**To:** Rose, Scott (ECY)  
**Subject:** RE: Gibraltar Senior Living VCP Application

Hi Scott:

We are finishing up the drilling at the site today. The intention of the investigation is to define the vertical and lateral extents of the impacts, infer from the data what the conditions are beneath the site buildings and beneath the south-adjointing right-of-way, and also to assess whether groundwater is affected.

We anticipate receiving lab data by the middle of next week and will have a report to Ecology in about 3 weeks. At that time we will be requesting an opinion. Our approach is to place an Environmental Covenant on the property to address the impacts beneath the buildings and to obtain a property-specific NFA.

Let me know if you have any questions.

Thanks!  
Liz

**Elizabeth Rachman, L.G., L.Hg.**  
**Senior Project Manager | Environmental Services**

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**From:** Rose, Scott (ECY) [mailto:[sros461@ECY.WA.GOV](mailto:sros461@ECY.WA.GOV)]  
**Sent:** Wednesday, May 20, 2015 8:22 AM  
**To:** Rachman, Liz A  
**Subject:** Gibraltar Senior Living VCP Application  
**Importance:** High

Liz,

Could you please respond to this email with a summary of what we discussed yesterday re: the status of your investigations with the site, and timing of submittal of your report for review? That way I can include it with the package to the site manager so expectations are clear. Thanks!

**Scott Rose, L.G.**  
**Unit Supervisor**  
**Department of Ecology**  
**TCP/SWRO**  
**(360) 407-6347**  
[sros461@ecy.wa.gov](mailto:sros461@ecy.wa.gov)

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## **Enclosure E**

### **Table 749-1 calculation for TEE**

**Table 749-1**  
**Simplified Terrestrial Ecological Evaluation – Exposure**  
**Analysis Procedure under WAC 173-340-7492(2)(a)(ii).<sup>a</sup>**

Estimate the area of contiguous (connected) undeveloped land on the site or within 500 feet of any area of the site to the nearest 1/2 acre (1/4 acre if the area is less than 0.5 acre). "Undeveloped land" means land that is not covered by existing buildings, roads, paved areas or other barriers that will prevent wildlife from feeding on plants, earth-worms, insects or other food in or on the soil.		
1) From the table below, find the number of points corresponding to the area and enter this number in the box to the right.		
<u>Area (acres)</u>	<u>Points</u>	7
0.25 or less	4	
0.5	5	
1.0	6	
1.5	7	
2.0	8	
2.5	9	
3.0	10	
3.5	11	
4.0 or more	12	
2) Is this an industrial or commercial property? See WAC 173-340-7490(3)(c). If yes, enter a score of 3 in the box to the right. If no, enter a score of 1.		1
3) Enter a score in the box to the right for the habitat quality of the site, using the rating system shown below <sup>b</sup> . (High = 1, Intermediate = 2, Low = 3)		3
4) Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2. See footnote c.		2
5) Are there any of the following soil contaminants present: Chlorinated dioxins/furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.		4
6) Add the numbers in the boxes on lines 2 through 5 and enter this number in the box to the right. If this number is larger than the number in the box on line 1, the simplified terrestrial ecological evaluation may be ended under WAC 173-340-7492 (2)(a)(ii).		10

**Footnotes:**

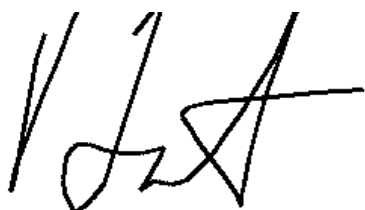
- a It is expected that this habitat evaluation will be undertaken by an experienced field biologist. If this is not the case, enter a conservative score (1) for questions 3 and 4.
- b **Habitat rating system.** Rate the quality of the habitat as high, intermediate or low based on your professional judgment as a field biologist. The following are suggested factors to consider in making this evaluation:  
**Low:** Early successional vegetative stands; vegetation predominantly noxious, nonnative, exotic plant species or weeds. Areas severely disturbed by human activity, including intensively cultivated croplands. Areas isolated from other habitat used by wildlife.  
**High:** Area is ecologically significant for one or more of the following reasons: Late-successional native plant communities present; relatively high species diversity; used by an uncommon or rare species; priority habitat (as defined by the Washington Department of Fish and Wildlife); part of a larger area of habitat where size or fragmentation may be important for the retention of some species.  
**Intermediate:** Area does not rate as either high or low.
- c Indicate "yes" if the area attracts wildlife or is likely to do so. Examples: Birds frequently visit the area to feed; evidence of high use by mammals (tracks, scat, etc.); habitat "island" in an industrial area; unusual features of an area that make it important for feeding animals; heavy use during seasonal migrations.

Date: June 8, 2018

Dept of Ecology:

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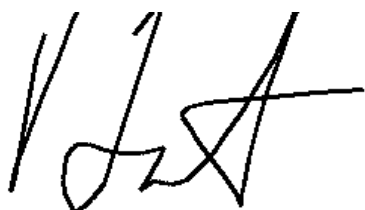
Sincerely,  
United States Postal Service

Date: June 8, 2018

Dept of Ecology:

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Sincerely,  
United States Postal Service